

MontCAS

Criterion-Referenced Test

2008–09

Technical Report

TABLE OF CONTENTS

SECTION I: ASSESSMENT DEVELOPMENT	1
CHAPTER 1. BACKGROUND AND OVERVIEW	1
1.1 Purpose of This Report	1
1.2 Overview of the Assessment System	2
1.3 Options for Participation.....	4
CHAPTER 2. OVERVIEW OF TEST DESIGN	5
2.1 Criterion-Referenced Test (CRT)	5
2.2 Item Types	5
2.3 Common-Matrix Design	5
CHAPTER 3. TEST DEVELOPMENT PROCESS	7
3.1 Montana CRT Item Development.....	7
3.2 Item Development Process Overview.....	8
3.3 Internal Item Review.....	8
3.4 External Item and Bias Reviews	9
3.5 Item Editing	9
3.6 Operational Test Assembly	9
3.7 Editing Drafts of Operational Tests	10
3.8 Braille and Large-Print Translation.....	11
CHAPTER 4. DESIGN OF THE READING ASSESSMENT	13
4.1 Reading Specifications.....	13
4.2 Item Types	13
4.3 Distribution of points Across Content Standards.....	14
4.4 Reading Passage Types.....	14
CHAPTER 5. DESIGN OF THE MATHEMATICS ASSESSMENT	17
5.1 Mathematics Specifications	17
5.2 Item Types	17
5.3 Test Design	17
5.4 Distribution of Points Across Content Standards.....	18
5.5 Depth of Knowledge	18
5.6 The Use of Calculators in the CRT	19
CHAPTER 6. DESIGN OF THE SCIENCE ASSESSMENT	21
6.1 Science Specifications.....	21
6.2 Item Types	21
6.3 Test Design	21
6.4 Distribution of Points Across Content Standards.....	22
6.5 Depth of Knowledge	22
SECTION II: TEST ADMINISTRATION AND SCORING	25
CHAPTER 7. TEST ADMINISTRATION	25
7.1 Responsibility for Administration.....	25
7.2 Procedures.....	25
7.3 Test Administrator Training.....	25
7.4 Participation Requirements	26
7.5 Test Scheduling.....	27
7.6 Help Desk.....	28
CHAPTER 8. SCORING	29
8.1 Scanning.....	29
8.2 Scanning Quality Control.....	29
8.3 Electronic Data Files.....	30
8.4 Items Scored by Readers.....	31
8.5 Preliminary Activities	32
8.6 Planning and Designing Documents	32
8.7 Benchmarking	33
8.8 Selecting and Training Scoring Staff	33
8.8.1 Quality Assurance Coordinators (QACs) and Senior Readers (SRs)	33

8.8.2	Training QACs and SRs.....	33
8.8.3	Selecting Readers.....	33
8.8.4	Training of Readers.....	35
8.8.5	Monitoring Readers.....	36
SECTION III—STATISTICAL AND PSYCHOMETRIC SUMMARIES.....		41
CHAPTER 9. CLASSICAL ITEM ANALYSES.....		41
9.1	Difficulty Indices	41
9.2	Item Discrimination	42
9.3	Summary of Item Analysis Results.....	42
9.4	Differential Item Functioning (DIF)	43
9.5	Dimensionality Analyses	44
9.6	Item Response Theory Analyses.....	47
CHAPTER 10. SCALING AND EQUATING.....		49
10.1	General Rules.....	49
10.2	IRT Equating.....	50
10.3	Translating Raw Scores to Scaled Scores and Performance Levels.....	51
CHAPTER 11. RELIABILITY		55
11.1	Reliability and Standard Errors of Measurement.....	56
11.2	Subgroup Reliability	57
11.3	Reporting Subcategories Reliability	58
11.4	Reliability of Performance-Level Categorization	58
11.5	Results of Accuracy, Consistency, and Kappa Analyses	59
CHAPTER 12. VALIDITY SUMMARY		61
SECTION IV—MONTANA REPORTING.....		63
CHAPTER 13. REPORTING		63
13.1	Montana Analysis and Reporting System (MARS)	63
SECTION IV—REFERENCES		65
APPENDICES.....		67
Appendix A	<i>Analysis and Reporting Decision Rules</i>	
Appendix B	<i>Accommodation Frequencies by Content Area</i>	
Appendix C	<i>Item Level Classical Statistics</i>	
Appendix D	<i>Item Difficulty and Discrimination Indices and Classical Item Statistic Descriptives</i>	
Appendix E	<i>Number of Items Classified into DIF Categories and Common Item DIF Counts</i>	
Appendix F	<i>Delta Analyses and Rescore Analysis Results</i>	
Appendix G	<i>Item Response Theory Calibration Results</i>	
Appendix H	<i>Raw to Scaled Score Look-up Tables</i>	
Appendix I	<i>Detailed Alpha Coefficient Results</i>	
Appendix J	<i>Decision Accuracy and Consistency Results</i>	
Appendix K	<i>Scaled Score Percentage, Cumulative Percentage, and Achievement</i>	
Appendix L	<i>Level Distributions Across Raw & Scaled Ranges</i>	
Report Shells		

SECTION I: ASSESSMENT DEVELOPMENT

Chapter 1. BACKGROUND AND OVERVIEW

1.1 Purpose of This Report

In the spring of 2009, Montana students in grades 3 through 8 and 10 participated in the MontCAS Criterion-Referenced Test (Montana CRT) in reading, mathematics, and science. The purpose of this assessment is to measure students' achievement as articulated by Montana content standards and grade-level expectations. The 2008–09 CRT represents the sixth year of the operational program.

This report describes technical aspects of the Montana CRT in an effort to contribute to the accumulation of validity evidence to support Montana CRT score interpretations. Because the interpretations of test scores, not the test itself, are evaluated for validity, this report presents documentation to substantiate intended interpretations [American Educational Research Association (AERA), American Psychological Association & National Council on Measurement in Education, 1999]. Subsequent chapters of this report discuss test development, test alignment, test administration, scoring, equating, item analyses, reliability, scaled scores, performance levels, and reporting. Each of these topics contributes important information toward establishing the validity of the assessment program. Note, however, that this report does not include certain aspects of a comprehensive validity argument that could also be important to consider when drawing conclusions about validity (e.g., additional sources of validity evidence might speak to the extent to which Montana CRT scores converge with other measures of the same or similar constructs and diverge from measures of different constructs, consequences that arise from scores at the student, school, district and state levels).

Historically, some parts of technical reports may have been used by educated laypersons, but the intended audience was experts in psychometrics and educational research. This edition of the Montana CRT Technical Report attempts to make information more accessible to educated laypersons by providing more thorough descriptions of general categories of information. In making some information more accessible, we have purposely preserved the depth of technical information provided. The reader will find that some discussions and tables continue to require a working knowledge of measurement concepts, such as “reliability” and “validity,” and statistical concepts, such as “correlation” and “central tendency.” To fully understand some of the data presented, the reader will have to possess a basic understanding of advanced topics in measurement and statistics.

1.2 Overview of the Assessment System

The Montana CRT was developed in accordance with the following federal laws: Title 1 of the Elementary and Secondary Education Act (ESEA) of 1994, P. L. 103–382 and the No Child Left Behind Act (NCLB) of 2001.

Montana grade-content CRT instruments are based on and aligned to Montana's content standards, benchmarks, and grade-level expectations in reading, mathematics, and science. Montana educators worked with Montana Office of Public Instruction OPI and Measured Progress to develop test items that assess how well students have met Montana grade-level expectations for each content area. In addition, NWREL performed an independent alignment study for mathematics and reading in 2006 and for science in 2007. NWREL's alignment studies can be found on OPI's Web site at www.opi.mt.gov/assessment.

Montana CRT scores are intended to be useful indicators of the extent to which students have mastered material outlined in Montana reading, mathematics, and science content standards, benchmarks, and grade-level expectations. Each student's Montana CRT score should be used as part of a body of evidence regarding mastery and should not be used in isolation to make high-stakes decisions. Montana CRT scores are more reliable indicators of program success when aggregated to school, system, or state levels, particularly when monitored over the course of several years.

Table 1-1. 2008–09 MontCAS: Time Line of Major Program Milestones

Milestone	Year	Content Area(s)
Montana content standards adopted by Montana's Board of Education	1998	Reading and Mathematics
Item development and field-test administration of Montana-specific items in the grade 3 through 8 and 10 CRT	2003	Reading and Mathematics
First operational administration of the CRT in grades 4, 8, and 10	2004	Reading and Mathematics
Standard setting for grades 4, 8, and 10	2004	Reading and Mathematics
Second operational administration of the CRT in grades 4, 8, and 10	2005	Reading and Mathematics
Field-test administration in grades 3, 5, 6, and 7	2005	Reading and Mathematics
Third operational administration of the CRT in grades 4, 8, and 10	2006	Reading and Mathematics
First operational administration of the CRT in grades 3, 5, 6, and 7	2006	Reading and Mathematics
Standard setting for grades 3 through 8 and 10	2006	Reading and Mathematics
Item development and bias review by Montana educators to prepare for science field test in spring 2007	2006	Science
Fourth operational administration of the CRT in grades 4, 8, and 10	2007	Reading and Mathematics
Second operational administration of the CRT in grades 3, 5, 6, and 7	2007	Reading and Mathematics
Field-test administration in grades 4, 8, and 10	2007	Science
Fifth operational administration of the CRT in grades 4, 8, and 10	2008	Reading, Mathematics, and Science
Third operational administration of the CRT in grades 3, 5, 6, and 7	2008	Reading, Mathematics, and Science
Standard setting for grades 4, 8, and 10	2008	Science
Sixth operational administration of the CRT in grades 4, 8, and 10	2009	Reading, Mathematics, and Science
Fourth operational administration of the CRT in grades 3, 5 6 & 7	2009	Reading and Mathematics

1.3 Options for Participation

All Montana students enrolled in accredited schools are required to participate in either the Montana CRT or the Montana CRT-Alternate. The vast majority of students participate in the CRT using standard administration procedures. However, an array of standard accommodations is available to any student, with or without disabilities, when such accommodations are necessary to allow the student to demonstrate his/her skills and competencies. Standard accommodations are not considered to change the constructs being measured and may be provided to students as necessary for any or all of the reading, mathematics, or science portions of the assessment. Students' tests are scored the same way whether or not they take the test using standard accommodations.

In addition to standard accommodations, other accommodations for the Montana CRT are available to students when specified in their IEPs, 504 plans, or LEP plans. These other accommodations are referred to as nonstandard accommodations; because they are considered to alter the constructs being measured, they do affect a student's score on the CRT. When a nonstandard accommodation is used, the student's score is reported as the lowest possible for that content area (e.g., a scaled score of 200 will fall into the *Novice* performance level). Nonstandard accommodations may be provided in reading, mathematics, or science, as dictated by the student's IEP, 504 plan, or LEP plan.

A very small percentage of students participate in the statewide assessment program by taking the CRT-Alternate. Students with significant cognitive who are working toward alternate academic achievement standards, as documented in their Individualized Education Program (IEP), are eligible to take the CRT-Alternate. Technical characteristics of the CRT-Alternate program are described in a companion technical report.

Chapter 2. OVERVIEW OF TEST DESIGN

2.1 Criterion-Referenced Test (CRT)

Items on the Montana CRT are developed specifically for Montana and are directly linked to Montana's content standards. These content standards are the basis for the reporting categories developed for each content area and are used to help guide the development of test items. No other content or process is subject to statewide assessment. An item may address part, all, or several of the benchmarks within a standard.

2.2 Item Types

Montana educators and students are familiar with the types of items used in the assessment program. The types of items and their functions are described below:

- **Multiple-choice (MC)** items are used to provide breadth of coverage within a content area. Because they require no more than a minute for most students to answer, MC items make efficient use of limited testing time and allow for coverage of a wide range of knowledge and skills.
- **Short-answer (SA)** mathematics items are used to assess students' skills and abilities to work with brief, well-structured problems that have one or a very limited number of solutions (e.g., mathematical computations). SA items require approximately two minutes for most students to answer. The advantage of this type of item is that it requires students to demonstrate knowledge and skills by generating, rather than merely selecting, an answer.
- **Constructed-response (CR)** items typically require students to use higher-order thinking skills—evaluation, analysis, summarization, and so on—to construct satisfactory responses. CR items take most students approximately 5 to 10 minutes to complete. Note that the use of released Montana CRT items to prepare students to respond to CR items is appropriate and encouraged.

2.3 Common-Matrix Design

The Montana CRT is structured using both *common* and *field-test* items (matrix-sampled items). Common items are taken by all students in a given grade level. Student scores are based only on common items. In addition, a large pool of matrix-sampled items is divided among the eight forms of the test for each grade level. Each student takes only one form of the test and therefore answers a fraction of the matrix-sampled items in the entire pool. Field-test items (matrix-sampled items) are not identifiable to test takers and have a negligible impact on testing time. Because all students participate in the field test, it provides the sample size (750–1500 students per item) needed to produce reliable data that can be used to inform item selection for future tests.

Chapter 3. TEST DEVELOPMENT PROCESS

3.1 Montana CRT Item Development

Items used on the Montana CRT are developed and customized specifically for use on the Montana CRT and are consistent with Montana content standards, benchmarks, and grade-level expectations. Measured Progress curriculum and assessment specialists work with Montana educators to verify the alignment of items to the appropriate Montana content standards. As an additional quality control check, NWREL performed an independent alignment study to verify item alignment to Montana content standards for mathematics and reading in 2006 and for science in 2007.

The development process Measured Progress follows combines the expertise of Measured Progress curriculum and assessment specialists and a panel of Montana educators to help ensure that items meet the needs of the CRT program. All items used on the common portions of the Montana CRT program are reviewed by a panel of Montana content and bias experts. Tables 3-1 through 3-3 indicate the numbers of items developed within each content area for the 2008–2009 Montana CRT.

Table 3-1. 2008–09 MontCAS: Total Numbers of Items Developed by Content Area—Grades 3–8 and 10

Grade	Mathematics	Reading	Science
3	78	168	
4	78	168	116
5	78	168	
6	78	168	
7	78	168	
8	78	168	116
10	78	168	116

Table 3-2. 2008–09 MontCAS: Annual Reading Item Development—Grades 3–8 and 10

Passages	MC	CR
2 long literary passages	40	4
2 long informational passages	40	4
4 short literary passages	40	0
4 short informational passages	40	0
12 total passages	160	8

MC = multiple-choice; CR = constructed-response

Table 3-3. 2008–09 MontCAS: Annual Mathematics Item Development—Grades 3–8 and 10

MC	SA	CR
68	4	6

MC = multiple-choice; SA = short-answer; CR = constructed-response

Table 3-4. 2008–09 MontCAS: Annual Science Item Development—Grades 4, 8 and 10

MC	CR
53	2

MC = multiple-choice; SA = short-answer; CR = constructed-response

3.2 Item Development Process Overview

Table 3-5 provides an overview of the item development process for common and matrix items, including the administration of field tests.

Table 3-5. 2008–09 MontCAS: Item Development Process Overview

<i>Development Step</i>	<i>Step Details</i>
Select reading passages and conduct external review for bias and sensitivity issues (December 2006)	Measured Progress curriculum and assessment specialists located potential reading passages. Reading passages were reviewed for bias and sensitivity issues before the development of reading items.
Develop items (January through May 2007)	Measured Progress curriculum and assessment specialists developed reading and mathematics items.
Item review for bias and sensitivity issues and content appropriateness (May 2007)	Panels of Montana educators reviewed reading, mathematics, and science field-test items for bias and sensitivity issues.
Edit items (summer 2007)	Montana Educator's editorial comments were incorporated at this time.
Field-test items (spring 2008)	Embedded field-test (matrix) items were administered to a sample of students (minimum of 2,500 students per item/8 forms per grade and content area).
Item Selection Meeting (July 2008)	Measured Progress curriculum and assessment specialists and Montana educators reviewed the results of the spring 2007 field test and selected common items for the spring 2008 operational CRT forms.
Operational test items (March 2009)	Items are now part of the common item set and are used to determine student scores.

3.3 Internal Item Review

The lead or a peer curriculum and assessment specialist within each content area reviewed items for

1. item integrity, including content and structure, appropriateness to designated content area, format, clarity, possible ambiguity, and single correct answer.
2. appropriateness and quality of reading selections and graphics
3. appropriateness of scoring guide descriptions and distinctions.
4. that the item is measuring the intended content standard
5. completeness of (e.g. with scoring guide, content codes, key, grade level, depth of knowledge and contract identified)
6. appropriate for the designated grade level

3.4 External Item and Bias Reviews

All Montana items underwent the following external reviews:

- In December 2006, the Montana Passage Review Committee met in Helena, Montana, to review passages that would be developed for the 2008–09 CRT administration. The committee consisted of teachers and education specialists from across the state.
- In May 2007, Montana educators from across the state reviewed field-test (matrix) items for bias issues, content appropriateness, alignment to standards, depth-of-knowledge assignment, and grade-level appropriateness. Feedback from these meetings was incorporated into the editing processes.
- In March 2008, items were field-tested.
- In July 2008, Measured Progress curriculum and assessment specialists and Montana educators selected common item sets. Items that did not perform well on the 2008 field test were rejected. Feedback from the Montana content and bias reviews were incorporated into the final editing processes.

3.5 Item Editing

Editors reviewed and edited the items to ensure adherence to style guidelines in the *Chicago Manual of Style, 15th ed.*, and to sound testing principles. These principles include the stipulations that items

- demonstrate correct grammar, punctuation, usage, and spelling;
- are written in a clear, concise style;
- contain unambiguous explanations that tell students what is required to attain a maximum score;
- are written at a reading level that allows students to demonstrate their knowledge of the subject matter being tested regardless of reading ability;
- exhibit high technical quality regarding psychometric characteristics;
- have appropriate answer options or score-point descriptors; and
- are free of potentially insensitive content.

3.6 Operational Test Assembly

During test assembly, items were sorted and laid out into test forms. In order to accommodate the embedded field-test design, eight forms of each test were administered in grades 3 through 8 and 10.

The following criteria are considered during this process:

- **Content coverage/match to test design.** The curriculum and assessment specialist initially sorts items into sets based on a balance of content categories across sessions and forms, as well as a match to test design (e.g., numbers of MC, SA, and CR items).
- **Item difficulty and complexity.** Item statistics drawn from data analyses of previously tested items are used to ensure similar levels of difficulty and complexity across forms.
- **Visual balance.** Item sets are reviewed to ensure that each form reflects a similar length and “density” of selected items (e.g., length/complexity of reading selections or number of graphics).
- **Option balance.** Each MC item set is checked to verify that keys are equally distributed among the options(As, Bs, Cs, and Ds).
- **Name balance.** Item sets are reviewed to ensure that a diversity of names are used.
- **Bias.** Each item set is reviewed to ensure fairness and balance based on gender, ethnicity, religion, socioeconomic status, and other factors.
- **Page fit.** Item sequence is modified to ensure the best fit and arrangement of items on any given page.
- **Facing-page issues.** Consideration is given to whether multiple MC items associated with a single stimulus (a reading selection or graphic)need to begin on a left- or right-hand page, as well as to the nature and amount of material that needs to be placed on facing pages. These considerations serve to minimize the amount of page flipping required of students.
- **Relationships among forms.** Common item sets are identical in all forms, which allows common items to appear in the same position and usually on the same page in all forms. Although matrix-sampled item sets differ from form to form, matrix-sampled items must take up the same number of pages in all forms so that sessions and content areas begin on the same page across forms. Therefore, the number of pages needed for matrix-sampled items the longest form often affects the layout of other form.
- **Visual appeal.** Each page of a form is reviewed for visual accessibility, including aspects such as the amount of white space, the density of text, and the number of graphics.

3.7 Editing Drafts of Operational Tests

Any changes made during test construction are reviewed and approved by the curriculum and assessment specialist. Once a form has been laid out in what is considered its “final form,” the form is reread to identify final considerations such as the following:

- **Editorial changes.** All text is scrutinized for editorial accuracy, including consistency of instructional language, grammar, spelling, punctuation, and layout. Measured Progress’s editorial standards are based on the *Chicago Manual of Style, 15th ed.*

- **Keying items.** Items are reviewed for any information that might “key” or provide information that could help students respond to another item. Decisions about moving keying items are based on the severity of the key-in and the placement of items in relation to one another within a form.
- **Key patterns.** The final sequence of keys is reviewed to ensure that the order appears random (i.e., no recognizable pattern, no more than three of the same key in a row).

3.8 Braille and Large-Print Translation

Form 1 for the grade 3 through 8 and 10 tests was translated into Braille by National Braille Press, a subcontractor that specializes in test materials for blind and visually impaired students. In addition, Form 1 for each grade was adapted into a large-print version, and the grade 7 test booklet was adapted for a Windows[©]-compatible screen-reader program commonly referred to as JAWS (job access with speech). Appendix A describes how the test was adapted for use with JAWS.

Chapter 4. DESIGN OF THE READING ASSESSMENT

4.1 Reading Specifications

The test blueprint/specifications for reading are based on Montana's reading content standards, which identify five Montana content standards that apply specifically to reading and reading comprehension. Those content standards are listed below:

- **Reading Standard 1:** Students construct meaning as they comprehend, interpret, and respond to what they read.
- **Reading Standard 2:** Students apply a range of skills and strategies to reading.
- **Reading Standard 3:** Students set goals, and monitor and evaluate their reading progress. (This standard cannot be measured with a traditional paper-pencil test.)
- **Reading Standard 4:** Students select, read, and respond to print and nonprint materials for a variety of purposes.
- **Reading Standard 5:** Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.

4.2 Item Types

The Montana CRT in reading includes a mix of MC and CR items. CR items require students to write answers consisting of one or more paragraphs. Each type of item is worth a specific number of points in the student's total reading score, as shown in Table 4-1.

Table 4-1. 2008–09 MontCAS: Item Types

<i>Item Type</i>	<i>Possible Score Points</i>
MC	0 or 1
CR	1, 2, 3, or 4

MC = multiple-choice; CR = constructed-response

Table 4-2 shows the numbers of MC and CR items for grades 3–8 and 10.

Table 4-2. 2008–09 MontCAS: Common Reading Items—Grades 3–8 and 10

Grade	Session 1	Session 2	Session 3	<i>Total</i>	
				MC	CRs
3 –8	19 MC, 1 CR	14 MC	19 MC, 1 CR	52	2
10	19 MC, 1 CR	14 MC	19 MC, 1 CR	52	2

MC = multiple-choice; CR = constructed-response

4.3 Distribution of points Across Content Standards

Table 4-3 shows the distribution of points across content standards.

**Table 4-3. 2008–09 MontCAS:
Reading Specifications/Blueprint Grades 3–8 and 10**

Number of Points for the Common (Scored) Test:		52 MC items + 2 CR items = 60 points						
Percent point distribution by content standard*								
Content Standards	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 10	
Standard 1	34%	34%	34%	34%	34%	34%	25%	
Standard 2	30%	30%	30%	30%	30%	30%	32%	
Standard 3								
Standard 4	18%	18%	18%	18%	18%	18%	22%	
Standard 5	18%	18%	18%	18%	18%	18%	22%	

Target point distribution by content standard (acceptable range)							
Content Standards	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 10
Standard 1	20 (18–22)	20 (18–22)	20 (18–22)	20 (18–22)	20 (18–22)	20 (18–22)	15 (13–17)
Standard 2	18 (16–20)	18 (16–20)	18 (16–20)	18 (16–20)	18 (16–20)	18 (16–20)	19 (17–21)
Standard 3							
Standard 4	11 (9–13)	11 (9–13)	11 (9–13)	11 (9–13)	11 (9–13)	11 (9–13)	13 (11–15)
Standard 5	11 (9–13)	11 (9–13)	11 (9–13)	11 (9–13)	11 (9–13)	11 (9–13)	13 (11–15)

MC = multiple-choice; CR = constructed-response

Four-point items: Each test contains two 4-point CR items. In any given year, the two items will measure two different standards. From year to year, those standards may change.

One-point items: The number of one-point items per content standard will vary from year to year depending on which two standards are measured by the four-point items. (The number of total points per standard falls within the acceptable range from year to year.)

4.4 Reading Passage Types

Reading passages include both long and short texts selected from sources that students in each grade level would likely encounter in their classroom or in their independent reading. No passages were written specifically for the assessment but were instead collected from published works. Each passage is classified as described below.

- **Literary passages** are represented by a variety of genres—modern narratives; diary entries; drama; poetry; biographies; essays; excerpts from novels; short stories; and traditional narratives, such as fables, myths, and folktales.

- **Informational passages** are nonfiction and generally include two sub-genres:
 - **Content passages** are primarily informational and often deal with the areas of science and social studies. They are drawn from sources such as newspapers, magazines, and books.
 - **Practical passages** are functional materials that instruct or advise the reader—for example, directions, reference tools, or reports.

The main difference among the passages used for grades 3–8 and 10 is their degree of complexity, which results from increasing levels of sophistication in language and concepts, as well as passage length. Measured Progress uses a variety of readability formulas to aid in the selection of passages appropriate for the intended audience. In addition, the grade-level expertise of Montana teachers contributes to the selection of passages for each grade level.

Items related to these passages require students to demonstrate their skills in both literal comprehension, where the answer is stated explicitly in the text, and inferential comprehension, where the answer is implied by the text and/or the text must be connected to relevant prior knowledge to determine an answer. Items focus on the reading skills reflected in the content standards and require students to use reading skills and strategies to answer correctly—for example, how to identify the author’s principal purpose, such as to persuade, entertain, or inform—and to demonstrate their understanding of how words and images communicate to readers. Tables 4-4 and 4-5 depict passage distribution and length in grades 3–8 and 10.

**Table 4-4. 2008–09 MontCAS:
Reading Passage Distribution Grades 3–8 and 10**

<i>Passage Type</i>	<i>Passage Content</i>	<i>Percent of Test</i>	<i>Point Distribution</i>
Literary	Stories, poetry, and other forms of literature	50 %	30 points
Informational	Content and practical passages	50 %	30 points
Total			60 points
<hr/>			
<i>Passage Length</i>	<i>Passage Type</i>	<i>Percent of Test</i>	<i>Point Distribution</i>
Long	One literary or one informational per session	50 %	30 points
Short	At least one literary and informational per session	50 %	30 points
Total			60 points

**Table 4-5. 2008–09 MontCAS:
Approximate Length of Reading Passages**

<i>Grade</i>	<i>Long Passage (number of words*)</i>	<i>Short Passage (maximum word length)</i>
3	350–800	350
4	400–850	400
5	450–850	450
6	450–900	450
7	450–950	450
8	500–1,000	500
10	550–1,200	550

While every attempt is made to adhere to recommended grade-level word counts for long and short passages, the final decision to select a passage is based on extensive reviews by content experts and bias panels; careful analysis of the sophistication of language and complexity of concepts in the passage; and the readability of the passage.

Chapter 5. DESIGN OF THE MATHEMATICS ASSESSMENT

5.1 Mathematics Specifications

The mathematics specifications/blueprint are based on Montana's mathematics content standards:

- Mathematics Standard 1: Problem Solving
- Mathematics Standard 2: Numbers and Operations
- Mathematics Standard 3: Algebra
- Mathematics Standard 4: Geometry
- Mathematics Standard 5: Measurement
- Mathematics Standard 6: Data Analysis, Statistics, and Probability
- Mathematics Standard 7: Patterns, Relations, and Functions

5.2 Item Types

The Montana CRT in mathematics includes MC, SA, and CR items. SA items require students to perform a computation or solve a simple problem. CR items are more complex, requiring 8–10 minutes of response time. Each type of item is worth a specific number of points in the student's total mathematics score, as shown in Table 5-1.

Table 5-1. 2008–09 MontCAS: Item Types

<i>Item Type</i>	<i>Possible Score Points*</i>
MC	0 or 1
SA	0 or 1
CR	0, 1, 2, 3, or 4

MC = multiple-choice; SA = short-answer; CR = constructed-response

5.3 Test Design

Table 5-2 summarizes the numbers and types of items that were used to construct the common portion of the Montana CRT in mathematics for 2008–09.

Table 5-2. 2008–09 MontCAS: Common Mathematics Items

<i>Session</i>	<i>Calculator</i>	<i>Number of Items</i>	<i>Calculator</i>	<i>Number of Items</i>
1	Not Allowed	18 MC	Not Allowed	14 MC
		2 SA		3 SA
		1 CR		1 CR
2	Not Allowed	19 MC	Allowed	21 MC
		1 SA		
3	Allowed	18 MC	Allowed	20 MC
		1 CR		1 CR

MC = multiple-choice items SA = short-answer items CR = constructed-response items

5.4 Distribution of Points Across Content Standards

Table 5-3 shows the distribution of points across the content standards.

**Table 5-3. 2008–09 MontCAS:
Mathematics Specifications/Blueprint**

Content Standards	Raw score/percent point distribution by content strand)*						
	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 10
Problem Solving and Number and Operations	34%(22)	34%(22)	32%(21)	32%(21)	27%(18)	27%(18)	20%(13)
Algebra	12%(8)	12%(8)	12%(8)	12%(8)	12%(8)	12%(8)	16%(11)
Geometry	15%(10)	15%(10)	16%(11)	16%(11)	18%(12)	18%(12)	20%(13)
Measurement	15%(10)	15%(10)	12%(8)	12%(8)	12%(8)	12(8)%	12%(8)
Data Analysis, Probability, and Statistics	12%(8)	12%(8)	15%(10)	15%(10)	18%(12)	18%(12)	20%(13)
Patterns, Relations, and Functions	12%(8)	12%(8)	12%(8)	12%(8)	12%(8)	12%(8)	12%(8)

*Because percents are rounded to the nearest whole number, not all sums add to 100%.

The mathematics test design consists of 55 MC items, three one-point SA items, and two four-point CR items for 66 total points. There are two types of one-point items: MC and SA items. The number of one-point items per strand will vary from year to year depending on which two strands are measured by the four-point items.

5.5 Depth of Knowledge

Each item on the Montana CRT in mathematics is assigned a depth-of-knowledge (DOK) level according to the cognitive demand of the item. Depth of knowledge is not synonymous with difficulty. The depth-of-knowledge level rates the complexity of the mental processing a student must use to solve a problem. Each of the four levels is described below:

- **Level 1 (Recall).** This level requires the recall of a fact, definition, term, simple procedure; the application of a formula; or the performance of a straight algorithmic procedure. Items at this level may require students to demonstrate a rote response.
- **Level 2 (Skill/Concept).** This level requires mental processing beyond that of a habitual response. These items often require students to make some decisions as how to approach a problem.
- **Level 3 (Strategic Thinking).** This level requires students to develop a plan or sequence of steps. These items are more complex and abstract than the items at the previous two levels. These items may also have more than one possible answer and may require students to use evidence, make conjectures, or justify their answers.

- **Level 4 (Extended Thinking).** This level requires planning, investigation, and complex reasoning over an extended period of time. Students are required to make several connections within and across content areas. This level may require students to design and conduct experiments. Due to the nature of level 4, no items on the CRT are rated as extended thinking.

It is important that the Montana CRT in mathematics measure a range of depths of knowledge. Table 5-4 shows the percent and point ranges of the three depth-of-knowledge levels used on the CRT in mathematics.

Table 5-4. 2008–09 MontCAS: Depth-of-Knowledge (DOK) Percent and Distribution by Level		
<i>DOK Level</i>	<i>Percent Range</i>	<i>Point Range</i>
1	20% to 30%	13 to 20 points
2	60% to 75%	39 to 50 points
3	5% to 10%	4 to 8 points

5.6 The Use of Calculators in the CRT

Montana educators who helped develop the Montana CRT acknowledged the importance of mastering arithmetic algorithms. At the same time, they understood that the use of calculators is a necessary and important skill in society today. Calculators can save time and prevent error in the measurement of some higher-order thinking skills and allow students to do more sophisticated and intricate problems. For these reasons, calculators were permitted on some parts of the Montana CRT in mathematics and prohibited on other parts. (Students were allowed to use any calculator with which they were familiar.)

Chapter 6. DESIGN OF THE SCIENCE ASSESSMENT

6.1 Science Specifications

The science specifications are based on Montana's science content standards:

- **Science Standard 1:** Scientific Investigations—Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate results and reasonable conclusions of scientific investigations.
- **Science Standard 2:** Physical Science—Students, through the inquiry process, demonstrate knowledge of properties, forms, changes, and interactions of physical and chemical systems.
- **Science Standard 3:** Life Science—Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.
- **Science Standard 4:** Earth/Space Science—Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes, and interactions of Earth's systems and other objects in space.
- **Science Standard 5:** Impact on Society—Students, through the inquiry process, understand how scientific knowledge and technological developments impact communities, cultures and societies.
- **Science Standard 6:** Historical Development—Students understand historical developments in science and technology.

6.2 Item Types

The CRT in science includes MC and CR items. MC items require students to select the correct response from four choices, each item taking an average of one minute to answer. CR items are more involved, requiring 8–10 minutes of response time. Each type of item is worth a specific number of points in the student's total science score, as shown in Table 6-1.

Table 6-1. 2008–09 MontCAS: Item Types

<i>Item Type</i>	<i>Possible Score Points</i>
MC	0 or 1
CR	0, 1, 2, 3, or 4

MC = multiple-choice; CR = constructed-response

6.3 Test Design

Table 6-2 summarizes the numbers and types of items that were used to compute student scores on the 2008–09 Montana CRT in science. Additionally, each test form had 25 MC matrix field-test items and one CR matrix field-test item that did not affect student scores.

Table 6-2. 2008–09 MontCAS: Science Items

Grades	Session 1	Session 2	Session 3	<i>TOTAL</i>	
				MC	CR
4, 8, and 10	18 MC, 1 CR	17 MC	18 MC, 1 CR	53	2

MC = multiple-choice; SA – short-answer; CR = constructed-response

6.4 Distribution of Points Across Content Standards

Table 6-3 shows the distribution of points and item types across the content standards.

Table 6-3. 2008–09 MontCAS: Science Specifications/Blueprint

Percent Point distribution by content standard

Montana Standards	Grades 4, 8, and 10
1. Scientific Investigations	23%
2. Physical Science	23%
3. Life Science	23%
4. Earth/Space Science	23%
5. Impact on Society	8%
6. Historical Development	

Point distribution by content standard

Montana Standards	Grades 4, 8, and 10
1. Scientific Investigations	14
2. Physical Science	14
3. Life Science	14
4. Earth/Space Science	14
5. Impact on Society	5
6. Historical Development	

The science test design consists of 53 MC items and two four-point CR items for 61 total points. In any given year, the two CR items will measure two different standards. From year to year, those standards may change.

6.5 Depth of Knowledge

Each item on the Montana CRT in science is assigned a depth-of-knowledge (DOK) level. The depth-of-knowledge level reflects the complexity of mental processing students use to answer an item. Depth of knowledge is not synonymous with difficulty. Each of the four levels is described below.

- **Level 1 (Recall).** This level requires the recall of information such as a fact, definition, term, or simple procedure. These items require students only to demonstrate a rote response, use a well-known formula, or follow a set procedure.

- **Level 2 (Skill/Concept).** This level requires mental processing beyond that of recalling or reproducing a response. These items require students to make some decisions about how to approach the item.
- **Level 3 (Strategic Thinking).** This level requires reasoning, planning, and using evidence. These items require students to handle more complexity and abstraction than items at the previous two levels.
- **Level 4 (Extended Thinking).** This level requires planning, investigating, and complex reasoning over an extended period of time. Students are required to make several connections within and across content areas. This level may require students to design and conduct experiments. Due to the nature of this level, there are no level 4 items on the CRT.

It is important that the Montana CRT in science measure a range of depths of knowledge. Table 6-4 shows the percent and point ranges of the three depth-of-knowledge levels used on the CRT in science.

**Table 6-4. 2008–09 MontCAS:
Depth-of-Knowledge (DOK) Percent and Distribution by Level**

DOK Level	Percent Range	Point Range
1	30% to 38%	18 to 23 points
2	60% to 62%	37 to 38 points
3	2 to 10%	1 to 6 points

SECTION II: TEST ADMINISTRATION AND SCORING

Chapter 7. TEST ADMINISTRATION

7.1 Responsibility for Administration

As indicated in the *Test Coordinator's Manual*, principals and/or their designated school test coordinators are responsible for the proper administration of the CRT. This report was used to ensure the uniformity of administration procedures from school to school.

7.2 Procedures

School test coordinators were instructed to read the *Test Coordinator's Manual* prior to testing and to be familiar with the instructions given in the *Test Administrator's Manual*. The *Test Coordinator's Manual* provides each school with checklists to help prepare for testing. The checklists outline tasks to be performed before, during, and after test administration. In addition to providing these checklists, the *Test Coordinator's Manual* outlines the nature of the testing materials sent to each school, how to inventory the materials, how to track the materials during administration, and how to return the materials once testing was complete. The *Test Coordinator's Manual* also contains information about including or excluding students. The *Test Administrator's Manual* includes checklists for administrators to prepare themselves, their classrooms, and their students for administration of the test. The *Test Administrator's Manual* contains sections that detail the procedure to be followed for each test session, and it contains instructions for preparing the materials prior to giving them to school test coordinators for return to Measured Progress.

7.3 Test Administrator Training

OPI hosted a test-administration workshop in Helena, Montana, on February 5 and 6, 2009. The workshop was well attended, but attendance of system and school test coordinators was not mandatory. OPI and Measured Progress staff members hosted six sessions that covered test accommodations, student information system (AIM) updates, CRT materials and administration, CRT-Alternate materials and administration, online reporting, and test security. Each session was presented six times so that participants could be educated on all facets of test administration.

In addition to the workshop and the distribution of the *2009 Test Coordinator's Manuals* and *Test Administrator's Manuals*, OPI and Measured Progress produced and distributed one audio PowerPoint presentation, "Spring 2009: CRT and CRT-ALT Overview and Update of System and School Test Coordinators," to each system and school test coordinator. Training materials and the audio PowerPoint presentation were also posted on OPI's Web site. The training CD provided system and school test

coordinators who were unable to attend the preadministration workshops with exposure to the training materials. The CDs also served as useful tools for training both system and school personnel.

7.4 Participation Requirements

All students were expected to participate in the CRT; however, the scores of students in the following categories were excluded from the calculation of averages:

- foreign exchange students
- students not enrolled in an accredited Montana school (for example, home-schooled students)
- students enrolled in a private accredited school
- students enrolled in a private non-accredited school
- students enrolled in a private non-accredited Title 1 school
- students enrolled part-time (less than 180 hours) taking a mathematics or reading course
- first year in U.S. LEP students were required to participate in the mathematics assessment only
- students who took the CRT using a “nonstandard” accommodation

A summary of this information is shown in Table 7-1, which was published in the *Test Administrator's Manual* and *Test Coordinator's Manual*.

Table 7-1. 2008–09 MontCAS: Summary of Eligibility for Exclusion from the CRT

<i>Excluded from averages</i>	<i>MUST Participate</i>	<i>MAY Participate</i>
Foreign exchange students	Yes	
Students not enrolled in an accredited Montana school		Yes
Students enrolled in a private accredited school	Yes	
Students enrolled in a private non-accredited school		Yes
Students enrolled in a private non-accredited Title I school		Yes
Students enrolled part-time (less than 180 hours) taking a mathematics or reading course		Yes
Reading: first year in U.S. LEP students		Yes
Mathematics: first year in U.S. LEP students	Yes	

Staff members coded information about exclusion, if applicable, in the Student Response Booklet after testing was completed. The *Test Coordinator's Manual* and *Test Administrator's Manual* provide detailed instructions for coding exclusions and accommodations. In addition, testing exclusions were discussed thoroughly in the pre-administration training audio CD (see Appendix A Reporting Decision Rules). Accommodation Frequencies for the 2008–09 Administration are shown in Appendix B.

7.5 Test Scheduling

The Montana CRT was administered during the spring of 2009 during a four-week period from March 3, 2009 to March 26, 2009. Reading and mathematics tests were administered in grades 3 through 8 and 10, and science tests were administered in grades 4, 8, and 10. Schools were able to schedule testing sessions at any time during the four-week period, provided they followed the sequence detailed in the scheduling guidelines in *Test Administrator's Manual*. Schools were asked to schedule makeup tests for students who were absent from initial test sessions during the testing window.

The Montana CRT is an untimed assessment; however, guidelines or ranges were provided in the *2009 Test Coordinator's Manual* and *2009 Test Administrator's Manual* based on the following estimates of the time it takes an average student to respond to each type of item on the test:

- MC items—1 minute per item
- SA items—2 minutes per item
- CR items—10 minutes per item

The provided guidelines suggested scheduling 45–55 minutes per test session (50–60 minutes for grade 10 students). The guidelines also suggested scheduling a break between each of the three sessions in each content area to prevent fatigue.

While the guidelines for scheduling were based on the assumption that most students would complete the test within the estimated amounts of time, each test administrator was asked to allow additional time for students who needed additional time to complete the test. If additional classroom space was not available for this purpose, schools were encouraged to use another space, such as a guidance office. If other areas were not available, the guidelines recommended scheduling each classroom used for test administration for the maximum possible amount of time.

7.6 Help Desk

To address testing concerns, Measured Progress established a help desk dedicated to the Montana CRT. Help desk support is an essential element to the successful administration of large-scale assessments. It provides a central location that individuals in the field can call via a toll-free number to request assistance, report problems, or ask specific questions.

The Measured Progress help desk provided support during all phases of the testing window. It was staffed at varying levels, based on need and the volume of calls received, from 8:00 A.M. to 4:00 P.M. MST. At a minimum, the help desk consisted of a product support specialist responsible for receiving, responding to, and tracking calls and e-mails, and routing issues to the appropriate person(s) for resolution. In addition, the program manager and/or program assistant addressed communications that required a higher level of program support.

When possible, all calls and e-mails received during business hours were responded to with resolution or updated within hours of receipt.

Chapter 8. SCORING

Scoring of MC, SA, and CR items is an important process in any large-scale assessment. This chapter defines the Montana CRT scoring processes.

8.1 Scanning

Months prior to test administration and subsequent scanning activities, members of Measured Progress's Scanning Department and program management team met to determine rules and required specifications for scanning and imaging. The information gathered at these meetings was then used to develop a customized scanning program for the Montana CRT.

For the Montana CRT program, Measured Progress used the NCS 5000i scanners, which employ rapid, highly accurate scanning and imaging technology. They feature real-time quality control checks, such as duplex read, the printing of a unique identifying number on each sheet of each booklet, and online editing capabilities.

At the conclusion of testing, Montana schools shipped all test materials back to Measured Progress. To expedite the scanning and scoring processes, Student Response Booklets were express shipped separately from other test materials. The 77,111 Student Response Booklets received were logged in; identified with appropriate scannable, preprinted school information sheets; examined for extraneous materials; counted and batched by school and grade; and moved into the scanning area.

During scanning, booklet bindings were removed so that individual pages could pass through the scanners one at a time. Once the bindings were cut, the sheets were put back in their proper boxes and placed in storage until needed for the scanning/imaging processes.

Customized scanning programs for all scannable materials were prepared to selectively read Student Response Booklets and to electronically format scanned information according to predetermined requirements. Any information that had been designated time- or process-critical, such as MC response data, was handled first.

All student response documents and other scannable information, including all student identification, demographics, and responses, necessary to produce the required reports were captured and converted into electronic format. The digital image clip information of SA and CR responses allowed Measured Progress to replicate student responses just as they appeared on the originals and to display the replicated responses on the readers' monitors. Data processing, scoring, benchmarking data analysis, and reporting were all accomplished electronically without further reference to the originals.

8.2 Scanning Quality Control

Scanning hardware is continuously monitored for conditions that could cause the machine to shut down if standards are not met. The machine displays an error message and prevents further scanning until the

condition is corrected. Areas monitored include document page and integrity checks, user-designed online edits, and internal checks of electronic functions.

In an effort to protect data integrity, Measured Progress operators perform a diagnostic routine before every scanning shift begins. In the rare event that the routine detects a photocell that appears to be out of range, the machine is recalibrated and tested again. If the read is still not up to standards, a field service engineer is called for assistance.

As a final safeguard, spot checks of scanned files, bubble by bubble and image by image, are routinely made throughout scanning runs. The result of all precautions is a scan error rate well below 1 per 1000.

8.3 Electronic Data Files

Test booklets were put into storage when scanning is complete; they are kept for at least 180 days beyond the close of the fiscal year. Once scanned files were determined to be complete and accurate, they were duplicated electronically and made available for many other processing options. Files were loaded onto the local area network (LAN) for transfer to Measured Progress's proprietary *iScore* system for scoring. The system was also used to identify and print papers to be used in benchmarking processes and then to transfer the data via the Internet, CD-ROM, or optical disk.

Table 8-1 indicates the numbers of responses scanned and scored within each content area.

**Table 8-1. 2008–09 MontCAS:
Number of Responses Scanned and Scored**

Content Area	Grade	Number of Responses Scanned and Scored
Mathematics	3	53,235
	4	54,010
	5	53,840
	6	53,860
	7	55,265
	8	55,296
	10	55,725
Reading	3	21,540
	4	21,850
	5	21,786
	6	21,790
	7	22,352
	8	22,364
	10	22,540
Science	4	21,860
	8	22,364
	10	22,540

8.4 Items Scored by Readers

All Measured Progress scoring facilities use a Web-based, proprietary *iScore* system to score SA and CR items. *iScore* ensures the security of responses and test items. All scoring is “blind”: No student names are associated with viewed responses or raw scores and all scoring personnel are subject to stringent nondisclosure requirements and supervision. Images of student responses are transferred electronically via a secure Web site to the computer monitors of readers located at one of Measured Progress’s scoring facilities. For Montana’s CRT program, scoring took place in Dover, New Hampshire; Albany, New York; Louisville, KY, and Denver, Colorado.

When *iScore* sends an image of a test response to an individual reader’s computer monitor, the reader evaluates the response and records a score via keypad or mouse entry. A new response appears immediately on screen. The system guarantees complete anonymity of individual students and ensures the randomization of responses during scoring.

Although *iScore* is based on conventional scoring techniques, it also offers the following benefits:

- real-time information on reader reliability, read-behinds, and overall process monitoring
- early access to subsets of data for tasks such as standard setting
- reduced material handling, which saves time and labor and enhances the security of materials
- immediate access to samples of student responses and scores for reporting and analysis through electronic media

Scoring operations were directed by the Montana CRT scoring project manager and carried out by the following staff members:

- chief readers who oversee all training and scoring within particular content areas
- quality assurance coordinators (QACs) who lead benchmarking and training activities and monitor scoring rates and consistency
- senior readers (SRs) who perform read-behinds of readers and assist at scoring tables as necessary
- readers who perform the bulk of scoring

Table 8-2 summarizes the educational credentials of the 2008–09 Montana CRT readers and QACs.

Table 8-2. 2008–09 MontCAS: Educational Credentials of Readers and QACs

Readers						
Description	Albany, NY	Denver, CO	Dover, NH	Louisville, KY	Total	Percent
Less than 48 college credits	0	0	0	0	0	0.00%
48+ college credits	7	0	0	3	10	3.44%
Associate's degree	6	0	1	6	13	4.47%
Bachelor's degree	52	10	10	108	180	61.86%
Master's degree	27	1	5	38	71	24.40%
Doctorate	6	1	0	10	17	5.84%
Total	98	12	16	165	291	100.01%

QACs						
Description	Albany, NY	Denver, CO	Dover, NH	Louisville, KY	Total	Percent
Less than 48 college credits	0	0	0	0	0	0.00%
48+ college credits	1	0	0	0	1	1.72%
Associate's degree	0	0	0	1	1	1.72%
Bachelor's degree	8	3	4	19	34	58.62%
Master's degree	4	2	3	11	20	34.48%
Doctorate	0	0	0	2	2	3.45%
Total	13	5	7	33	58	99.99%

8.5 Preliminary Activities

The preliminary activities for scoring included the following:

- participating in the planning and design of documents to be used for scoring
- reviewing items and scoring guides for benchmarking and training
- creating benchmarking packets
- selecting scoring staff members and training them for scoring

8.6 Planning and Designing Documents

At the request of the scoring project manager, scoring personnel advised project management and OPI staff on the program design in order to support an efficient and effective scoring process. Scoring staff also contributed to the design of

- response documents, image-capturing processes, and file formats and layout (in order to yield acceptable image clips).
- scoring benchmarks (a scoring guide, content area background information, and anchor papers).

8.7 Benchmarking

Before the scheduled start of 2008–09 Montana CRT scoring activities, scoring center staff members and Montana educators reviewed test items and scoring guides for benchmarking. At that point, chief readers and selected QACs prepared reader training materials.

Scoring staff from Measured Progress, curriculum and assessment specialists, and Montana educators selected one or two *anchor* examples for each item score point. An additional 6–10 responses per item were chosen as part of the *training* pack. The anchor pack consisted of midrange exemplars, while the training pack exemplars illustrated the full range within each score point. Chief readers, who work closely with QACs for each content area, facilitated the selection of response exemplars.

8.8 Selecting and Training Scoring Staff

8.8.1 Quality Assurance Coordinators (QACs) and Senior Readers (SRs)

Because read-behinds by QACs and SRs moderate the scoring process and maintain the integrity of scores, the individuals chosen to fill these positions are selected for their accuracy. The QACs, who train readers to score each item in their content area, are also selected for their ability to instruct and for their level of expertise in a content area. As such, QACs are typically retired teachers who have demonstrated a high level of expertise in their disciplines. The ratio of QACs and SRs to readers was approximately 1:11.

8.8.2 Training QACs and SRs

To ensure that all QACs provided consistent training and feedback, chief readers spent one day training and qualifying QACs and, following this, QACs reviewed all items with SRs. During scoring, QACs rotated among scoring tables, supervising readers and reading behind SRs, who in turn read behind a different table of readers each day.

8.8.3 Selecting Readers

Applicants for the reader position were required to demonstrate their scoring ability by participating in a preliminary scoring evaluation. The *iScore* system enables Measured Progress to efficiently measure a prospective reader’s ability to score student responses accurately. After participating in a training session, an applicant is required to achieve at least an 80% exact scoring agreement for a qualifying pack that consists of 20 responses to a predetermined item in the applicant’s content area. From a bank of approximately 150 responses, these 20 responses were randomly selected by QACs and approved by the CRs and curriculum and assessment specialists. Table 8-3 depicts the accuracy and qualification percentages of the reader applicants.

Table 8-3. 2008–09 MontCAS: Scoring Accuracy and Qualification Statistics

<i>Content Area</i>	<i>Grade</i>	<i>Item</i>	<i>Average Percent Exact Agreement for Embedded CR sets</i>	<i>Average Percent Exact Agreement for Double-Blind Scoring</i>	<i>Number of Readers Taking Qualification Sets</i>	<i>Number Successfully Qualifying</i>	<i>Percent Successfully Qualifying</i>
Mathematics	3	23	NA	97.0	NA	NA	NA
		24	NA	99.0	NA	NA	NA
		25	94.6	88.9	9	9	100.0
		48	NA	96.9	NA	NA	NA
		72	88.0	89.4	13	13	100.0
	4	23	NA	98.3	NA	NA	NA
		24	NA	96.1	NA	NA	NA
		25	96.3	87.6	12	12	100.0
		48	NA	97.2	NA	NA	NA
		72	96.6	81.5	13	13	100.0
	5	23	NA	98.5	NA	NA	NA
		24	NA	98.1	NA	NA	NA
		25	91.7	88.4	12	12	100.0
		48	NA	97.2	NA	NA	NA
		72	93.8	90.5	12	12	100.0
	6	18	NA	98.4	NA	NA	NA
		19	NA	98.1	NA	NA	NA
		20	NA	97.3	NA	NA	NA
		23	91.9	94.1	13	13	100.0
		73	90.2	91.9	14	14	100.0
	7	18	NA	98.3	NA	NA	NA
		19	NA	99.6	NA	NA	NA
		20	NA	97.7	NA	NA	NA
		23	92.1	97.0	12	12	100.0
		73	81.9	89.2	11	11	100.0
	8	18	NA	97.4	NA	NA	NA
		19	NA	96.4	NA	NA	NA
		20	NA	98.8	NA	NA	NA
		23	94.2	94.8	12	12	100.0
		73	81.5	86.6	12	12	100.0
	10	18	NA	99.1	NA	NA	NA
		19	NA	95.5	NA	NA	NA
		20	NA	95.9	NA	NA	NA
		23	88.3	92.3	22	22	100.0
		73	90.8	94.6	20	19	95.0
Reading	3	27	84.8	81.7	9	9	100.0
		81	85.8	75.5	9	9	100.0
	4	27	83.7	77.2	12	11	91.7
		81	90.7	76.0	11	11	100.0
	5	27	79.2	73.1	15	13	86.7
		81	77.9	80.2	10	10	100.0
	6	27	87.9	66.8	21	20	95.2
		81	85.0	71.0	11	11	100.0

continued

Content Area	Grade	Item	Average Percent Exact Agreement for Embedded CR sets	Average Percent Exact Agreement for Double-Blind Scoring	Number of Readers Taking Qualification Sets	Number Successfully Qualifying	Percent Successfully Qualifying
Reading	7	27	83.7	65.9	11	11	100.0
		81	86.1	75.9	17	16	94.1
	8	27	82.0	75.1	12	12	100.0
		81	90.3	76.3	11	11	100.0
	10	27	90.4	78.3	18	18	100.0
		81	81.5	86.1	11	11	100.0
Science	4	27	85.0	79.3	9	9	100.0
		81	94.8	87.4	8	8	100.0
	8	27	93.3	86.1	10	10	100.0
		81	97.0	89.7	10	10	100.0
	10	27	95.7	90.8	11	11	100.0
		81	84.3	87.2	11	11	100.0

8.8.4 Training of Readers

QACs commenced the actual training of readers by demonstrating the process of applying an item's scoring guide language to its anchor pack exemplars. After readers successfully assimilated this process, QACs allowed readers to score training pack exemplars. QACs then reviewed the results of training pack scoring with the readers and answered their questions.

Tables 8-4 and 8-5 are examples of SA and CR scoring guides, respectively.

**Table 8-4. 2008–09 MontCAS:
Short-Answer Item Scoring Guide**

Score Point	Description
1	The student's response provides a complete and correct answer.
0	The student's response is totally incorrect or too minimal to evaluate.
B	Blank/no response.

Table 8-5. 2008–09 MontCAS: Constructed-Response Item Scoring Guide

Score Point	Description
4	The student completes all important components of the task and communicates ideas clearly.
	The student demonstrates in-depth understanding of the relevant concepts and/or processes.
	When instructed to do so, the student chooses more efficient and/or sophisticated processes
	When instructed to do so, the student offers insightful interpretations or extensions (e.g., generalizations, applications, and analogies).
3	The student completes the most important components of the task and communicates clearly.
	The student demonstrates understanding of major concepts even though he/she overlooks or misunderstands some less important ideas or details.
2	The student completes most important components of the task and communicates those clearly.
	The student demonstrates that there are gaps in his/her conceptual understanding.
1	The student shows minimal understanding.
	The student addresses only a small portion of the required task(s).
0	The student's response is totally incorrect or irrelevant.
B	Blank/no response.

Two aspects of scoring efficiency are in conflict with this system. First, in order to minimize training expenses, it is desirable to train each reader on as few items as possible. Second, to prevent reader drift and to minimize retraining requirements, it is desirable to score any given item within a brief period of time. But the lower the number of unique items each reader scores, the greater the number of readers required to score each item quickly. To minimize this conflict, content-area readers are divided into two or more groups. Groups are trained to score different items (or item sets). When readers in each group have completed scoring for all responses to the item, they are trained on another item.

8.8.5 Monitoring Readers

Scoring of the 2008–09 Montana CRT took place over a period of approximately two weeks. Because items were randomly assigned to readers, each item in an individual student's response booklet was more than likely scored by a different reader. This maximization of the number of readers per student response booklet effectively minimizes bias errors due to reader sampling.

As common and matrix-sampled CR items were scored, SRs scored two percent of items via “read-behinds” to ensure consistency among readers and accuracy of individual readers. Individual reader and SR scores must match exactly more than 80% of the time and be adjacent at least 90% of the time. *iScore* is programmed to determine accuracy rates; therefore, if a reader is not meeting these standards, *iScore* alerts the SR. The SR determines whether that reader’s responses should be scored by another reader, scored by a QAC, or routed for special attention. The SR also recommends to the chief reader whether the reader should continue scoring and whether the reader’s scored responses for the day should be voided and reinserted into the unscored response queue. SRs and QAC’s were able to obtain current reader accuracy reports and speed reports online at any time. Table 8-6 displays the final summary statistics for double-blind scoring, and Table 8-7 shows the actions taken with respect to readers.

Table 8-6. 2008–09 MontCAS: Double-Blind Summary Statistics

Content Area	Grade	Number of Responses Scored	Total Number of Responses Double-Blind Scored	Total Number of Arbitrations Required	Percentage of Double-Blinds Arbitrated
Mathematics	3	53,235	1,614	37	2.29
	4	54,010	1,721	46	2.67
	5	53,840	1,636	27	1.65
	6	53,860	2,153	35	1.63
	7	55,265	2,701	41	1.52
	8	55,296	2,720	64	2.35
	10	55,725	2,882	58	2.01
Reading	3	21,540	652	9	1.38
	4	21,850	633	10	1.58
	5	21,786	642	14	2.18
	6	21,790	604	12	1.99
	7	22,352	661	19	2.87
	8	22,364	729	13	1.78
	10	22,540	946	10	1.06
Science	4	21,860	626	10	1.60
	8	22,364	955	14	1.47
	10	22,540	1,130	14	1.24

To ensure high inter-rater reliability and to prevent scoring drift after a reader scores a student response, *iScore* determines whether the reader has met the accuracy requirement—that double-blind scores match exactly more than 80% of the time and are adjacent at least 90% of the time. If a reader’s scores do not meet these standards, *iScore* will alert the SR, who will counsel the reader and determine whether he/she should continue scoring. The SR will then determine whether the responses the reader has scored should be scored by another reader, scored by a QAC, or routed for special attention. QAC’s and SRs are able to obtain current reader accuracy reports and speed reports online at any time. Table 8-7 summarizes the statistics relevant to voided or blocked readers.

Table 8-7. 2008–09 MontCAS: Voided or Blocked Reader Statistics

<i>Content Area</i>	<i>Grade</i>	<i>Item</i>	<i>Number of Readers with Voided Scores</i>	<i>Number of Readers NOT Allowed to Continue Scoring Based upon Other Quality Monitoring (Read-Behinds and Double Blinds)</i>
Mathematics	3	23	0	0
		24	0	0
		25	1	0
		48	0	0
		72	0	0
	4	23	0	0
		24	0	0
		25	1	0
		48	0	0
	5	72	3	0
		23	0	0
		24	0	0
		25	2	0
		48	0	0
	6	72	0	0
		18	0	0
		19	0	0
		20	0	0
		23	1	0
		73	0	0
		18	0	0
		19	0	0
		20	0	0
		23	1	0
	7	73	2	0
		18	1	0
		19	0	0
		20	0	0
		23	0	0
	8	73	10	0
		18	0	0
		19	0	0
		20	0	0
		23	0	0
	10	73	0	0
		18	1	0
		19	0	0
		20	0	0
		23	1	0
	Reading	73	1	0
		27	1	0
		81	0	0
		27	1	0
		81	0	0
	4	27	0	0
		81	0	0
	5	27	0	0
		81	0	0
	6	27	3	0
		81	0	0

continued

<i>Content Area</i>	<i>Grade</i>	<i>Item</i>	<i>Number of Readers with Voided Scores</i>	<i>Number of Readers NOT Allowed to Continue Scoring Based upon Other Quality Monitoring (Read-Behinds and Double Blinds)</i>
Reading	7	27	3	0
		81	0	0
	8	27	0	0
		81	0	0
	10	27	0	0
		81	0	0
Science	4	27	3	0
		81	1	0
	8	27	0	0
		81	0	0
	10	27	0	0
		81	0	0

NOTE: All readers who were allowed to continue scoring did so under increased quality screening. Additional read-behinds were conducted on these readers.

SECTION III—STATISTICAL AND PSYCHOMETRIC SUMMARIES

Chapter 9. CLASSICAL ITEM ANALYSES

As noted in Brown (1983), “A test is only as good as the items it contains.” A complete evaluation of a test’s quality must include an evaluation of each item. Both the *Standards for Educational and Psychological Testing* (AERA et al., 1999) and the *Code of Fair Testing Practices in Education* (2004) include standards for identifying quality items. Items should assess only knowledge or skills that are identified as part of the domain being tested and should avoid assessing irrelevant factors. Items should also be unambiguous and free of grammatical errors, potentially insensitive content or language, and other confounding characteristics. In addition, items must not unfairly disadvantage students in particular racial, ethnic, or gender groups.

Both qualitative and quantitative analyses are conducted to ensure that Montana CRT items meet these standards. Qualitative analyses are described in earlier chapters of this report; this chapter focuses on quantitative evaluations. Statistical evaluations are presented in four parts: 1) difficulty indices, 2) item-test correlations, 3) differential item functioning (DIF) statistics, and 4) dimensionality analyses. The item analyses presented here are based on the statewide administration of the Montana CRT in spring 2008. The numbers of students who participated in the assessment at each grade level were about 10,300 in grade 3; 10,400 in grade 4; 10,300 in grade 5; 10,600 in grade 6; 10,600 in grade 7; 11,000 in grade 8; and 11,100 in grade 10. Note that the information presented in this chapter is based on the items common to all forms, since those are the items on which student scores are calculated. (Item analyses are also performed for field-test items, and the statistics are then used during the item review process and form assembly for future administrations.)

9.1 Difficulty Indices

All MC, CR, and SA items are evaluated in terms of item difficulty according to standard classical test theory practices. Difficulty is defined as the average proportion of points achieved on an item and is measured by obtaining the average score on an item and dividing it by the maximum possible score for the item. MC items are scored dichotomously (correct vs. incorrect) so, for these items, the difficulty index is simply the proportion of students who correctly answered the item. CR items (two in each mathematics form and two in each reading form) are scored polytomously, meaning that a student can achieve a score of 0, 1, 2, 3, or 4. SA items (three computation items in each mathematics form) are scored 0 or 1. By computing the difficulty index as the average proportion of points achieved, the indices for the different item types are placed on a similar scale, ranging from 0.0 to 1.0 regardless of the item type. Although this index is traditionally described as a measure of difficulty, it is properly interpreted as an *easiness* index, because larger

values indicate easier items. An index of 0.0 indicates that all students received no credit for the item, and an index of 1.0 indicates that all students received full credit for the item.

Items that are answered correctly by almost all students provide little information about differences in student abilities, but they do indicate knowledge or skills that have been mastered by most students. Similarly, items that are correctly answered by very few students provide little information about differences in student abilities, but may indicate knowledge or skills that have not yet been mastered by most students. In general, to provide the best measurement, difficulty indices should range from near-chance performance (0.25 for four-option MC items or essentially zero for CR or SA items) to 0.90. However, on a standards-referenced assessment such as the Montana CRT, it may be appropriate to include some items with very low or very high item difficulty values to ensure sufficient content coverage (the Montana-CRT aims for a minimum of six items or points per standard).

9.2 Item Discrimination

A desirable characteristic of an item is for higher-ability students to perform better on the item than lower-ability students do. The correlation between student performance on a single item and total test score is a commonly used measure of this characteristic of the item. Within classical test theory, the item-test correlation is referred to as the item's discrimination, because it indicates the extent to which successful performance on an item discriminates between high and low scores on the test. For CR items, the item discrimination index used was the Pearson product-moment correlation; for dichotomous items (MC and SA), the corresponding statistic is commonly referred to as a point-biserial correlation. The theoretical range of these statistics is -1.0 to +1.0, with a typical observed range from 0.2 to 0.6.

Discrimination indices can be thought of as measures of how closely an item assesses the same knowledge and skills assessed by other items contributing to the criterion total score. That is, the discrimination index can be thought of as a measure of construct consistency. In light of this interpretation, the selection of an appropriate criterion total score is crucial to the interpretation of the discrimination index. Because each form of the Montana CRT was constructed to be parallel in content, the criterion score selected for each item was the total raw score for each form. The analyses were conducted separately for each form..

9.3 Summary of Item Analysis Results

Appendix C provides difficulty and discrimination indices (i.e., item-level classical statistics) for each item. Appendix D provides summary statistics of the difficulty and discrimination indices for each item. Appendix D also provides item difficulty and discrimination descriptive statistics and mean difficulty and discrimination indices broken down by item type—MC, CR (including both four-point CR and 1 one-point SA items), and all items (accompanied by standard deviations in parentheses). The item difficulty and discrimination indices are within generally acceptable and expected ranges. Very few items were answered correctly at near-chance or near-perfect rates. Similarly, the positive discrimination indices indicate that

students who performed well on individual items tended to perform well overall. There were a small number of items with near-zero discrimination indices, but none were reliably negative. While it is not inappropriate to include items with low discrimination values or with very high or very low item difficulty values to ensure that content is appropriately covered, there were very few such cases on the Montana CRT.

A comparison of indices across grade levels is complicated because these indices are population dependent. Direct comparisons would require that either the items or students were common across groups. Since that is not the case, it cannot be determined whether differences in performance across grade levels are due to differences in student abilities, differences in item difficulties, or both. However, one can say that, for reading, students in lower grades found their items more difficult than students in higher grades found their items.

Comparing the difficulty indices of MC items and CR or SA items is inappropriate because MC items can be answered correctly by guessing. Thus, it is not surprising that the difficulty indices for MC items tend to be higher (indicating that students performed better on these items) than the difficulty indices for CR items. Similarly, the partial credit allowed by four-point CR items is advantageous in the computation of item-test correlations, so the discrimination indices for these items tend to be larger than the discrimination indices for MC or SA items.

The statistics in Appendix D and those calculated for the full set of items in Appendix C are weighted according to the number of points contributed by each item. In the event that an item's statistics indicate it is flawed, the item is dropped from the scoring of the operational form. An item may be dropped, for example, if more than one of the response options is a defensible answer, or if the item is misleading or unclear in some way.

9.4 Differential Item Functioning (DIF)

The *Code of Fair Testing Practices in Education* (2004) explicitly states that subgroup differences in performance should be examined when sample sizes permit and that actions should be taken to ensure that differences in performance are due to construct-relevant, rather than irrelevant, factors. The *Standards for Educational and Psychological Testing* (AERA et al., 1999) includes similar guidelines. As part of the effort to identify such problems, Montana CRT items were evaluated in terms of differential item functioning (DIF) statistics.

DIF procedures are designed to identify items for which subgroups of interest perform differently beyond the impact of differences in overall achievement. For the Montana CRT, the standardization DIF procedure (Dorans and Kulick, 1986) was employed to evaluate subgroup differences for three comparison groups: male/female, white/Native American, and white/Hispanic. This procedure calculates the differences in item performance for groups of students matched for achievement on the total test. That is, the average item performance is calculated for students at every total score and then an overall average is calculated by weighting the total score distribution so the weighting is the same for the two groups. The index ranges from

–1.00 to 1.00 for MC and SA items and is adjusted to the same scale for CR items. Negative numbers indicate that the item was more difficult for female or non-white students. Dorans and Holland (1993) suggested that index values between –0.05 and 0.05 should be considered negligible. Most Montana CRT items fall within this range. Dorans and Holland further stated that items with values between –0.10 and –0.05 and between 0.05 and 0.10 (i.e., “low” DIF) should be inspected to ensure that no possible effect is overlooked and that items with values outside the [–0.10, 0.10] range (i.e., “high” DIF) are more unusual and should be examined very carefully.

DIF indices indicate the degree of differential performance between two groups. That differential performance may or may not be indicative of bias in the test. Course-taking patterns, different interests among the groups, or different school curricula among the groups can lead to DIF. If subgroup differences in performance are related to construct-relevant factors, the items should be considered for inclusion on a test.

Each item was categorized according to guidelines adapted from Dorans and Holland (1993). Appendix E shows the number of each type of item classified into each category (MC items vs. CR items; open-response items are included with CR items). Results are shown for male/female, white/Native American, and white/Hispanic comparisons. Appendix E also provides, for each of the three DIF categories, the number of each type of item that advantaged males or females (MC items vs. CR items; open-response items are included with CR items). There are some Montana CRT items categorized as “low” or “high” DIF. These indices must not be interpreted as indisputable evidence of bias. Both the *Code of Fair Testing Practices in Education* (2004) and the *Standards for Educational and Psychological Testing* (AERA et al., 1999) assert that test items must be free from construct-irrelevant sources of differential difficulty. If subgroup differences in performance can be plausibly attributed to construct-relevant factors, the items may be included on a test. What is important is to determine whether the cause of the differential performance is construct-relevant.

For the Montana CRT, there were relatively few items (less than five) flagged as having low or high DIF. The items that were flagged were reviewed for potential bias, and no obvious biases were detected. For this reason and to ensure sufficient content coverage, no items were excluded from the test as a result of the DIF analyses.

9.5 Dimensionality Analyses

DIF analyses were performed for pairs of subgroups to identify items that showed evidence of differences in performance beyond those that would be expected based on the primary construct that underlies total test score (also known as the “primary dimension;” for example, general achievement in mathematics). When items are flagged for DIF, statistical evidence points to their measuring dimensions other than the primary dimension.

Because tests are constructed with multiple content-area subcategories and their associated knowledge and skills, the potential exists to invoke a large number of dimensions beyond the common

primary dimension. Generally, subcategories are highly correlated with one another; therefore, the primary dimension subcategories share typically explains an overwhelming majority of variance in test scores. In fact, the presence of just such a dominant primary dimension is the psychometric assumption that provides the foundation for the unidimensional IRT models used for calibrating, linking, scaling, and equating the 2008–09 MontCAS test forms. As previously noted, a statistically significant DIF result does not automatically imply that an item is measuring an *irrelevant* construct or dimension. An item could be flagged for DIF because it measures one of the construct-*relevant* dimensions of a subcategory's knowledge and skills.

The purpose of dimensionality analyses is to investigate whether violation of the assumption of test unidimensionality is statistically detectable and, if so, a) the degree to which unidimensionality is violated and (b) the nature of the multidimensionality. Findings from dimensionality analyses performed on the 2008–09 MontCAS common items for mathematics, reading, and science are reported in this chapter. (Note: Only common items were analyzed since they are used for score reporting.)

Dimensionality analyses were conducted using nonparametric item response theory (IRT)-based methods referred to as DIMTEST (Stout, 1987; Stout, Froelich, & Gao, 2001) and DETECT (Zhang & Stout, 1999). Both methods use as their basic statistical building block the estimated average conditional covariances for item pairs. A conditional covariance is the covariance between two items conditioned on the expected total score for the rest of the test; the average conditional covariance is obtained by averaging all possible conditioning scores. When a test is strictly unidimensional, all conditional covariances are expected to take on values within random noise of zero, indicating statistically independent item responses for examinees with equal expected total test scores. Nonzero conditional covariances are essentially violations of the local independence principle, and local *dependence* implies multidimensionality. Thus, nonrandom patterns of positive and negative conditional covariances are indicative of multidimensionality.

DIMTEST is a hypothesis-testing procedure for detecting violations of local independence. The data are first divided into a training sample and a cross-validation sample. An exploratory analysis of the conditional covariances is then conducted on the training sample data to find the cluster of items that display the most evidence of local dependence. The cross-validation sample is then used to test whether the conditional covariances of the selected cluster of items display local dependence, conditioning on the total score for the nonclustered items. The DIMTEST statistic follows a standard normal distribution under the null hypothesis of unidimensionality.

DETECT is an effect-size measure of multidimensionality. As with DIMTEST, the data are first divided into a training sample and a cross-validation sample. The training sample is used to find a set of mutually exclusive and collectively exhaustive clusters of items that best fit a systematic pattern of positive conditional covariances for pairs of items from the same cluster and negative conditional covariances from different clusters. Next, the clusters from the training sample are used with the cross-validation sample data to average the conditional covariances: Within-cluster conditional covariances are summed and, from this sum, the between-cluster conditional covariances are subtracted. The difference is divided by the total number of

item pairs and the average is multiplied by 100 to yield an index of the average violation of local independence for an item pair. DETECT values less than 0.2 indicate very weak multidimensionality (or near unidimensionality), values of 0.2 to 0.4 indicate weak to moderate multidimensionality, values of 0.4 to 1.0 indicate moderate to strong multidimensionality, and values greater than 1.0 indicate very strong multidimensionality.

DIMTEST and DETECT were applied to the 2008–09 MontCAS. The data for each grade level and content area were split into a training sample and a cross-validation sample. Every grade level-content area combination included at least 10,000 student examinees, so every training sample and cross-validation sample included at least 5,000 students. DIMTEST was then applied to every grade level-content area combination. DETECT was applied to each dataset for which the DIMTEST null hypothesis was rejected in order to estimate the effect size of the multidimensionality.

Because of the large sample sizes for the Montana tests, DIMTEST would be sensitive even to quite small violations of unidimensionality, and the null hypothesis was strongly rejected for every dataset, except for grade 8 science. Specifically, the rejected DIMTEST hypothesis test *p*-values were 0.0001 for the grade 10 mathematics test and for the grade 4 and grade 6 reading tests. For all other reading, science, and mathematics tests, the rejected DIMTEST *p*-values were less than 0.00005. Strong rejection of the null hypothesis of unidimensionality for all but one test was not surprising because strict unidimensionality is an idealization that almost never holds exactly for a given dataset. Thus, it was important to use DETECT to estimate the effect size of the violations of local independence found by DIMTEST. Table 9-1 displays the multidimensional effect size estimates from DETECT.

Table 9-1. 2008–09 MontCAS: Multidimensionality Effect Sizes by Grade and Content Area

Grade	Content Area	Multidimensionality Effect Size	
		2007–08	2008–09
3	Mathematics	0.13	0.11
	Reading	0.12	0.12
4	Mathematics	0.13	0.12
	Reading	0.11	0.12
	Science	0.09	0.11
5	Mathematics	0.18	0.13
	Reading	0.10	0.10
6	Mathematics	0.14	0.12
	Reading	0.13	0.12
7	Mathematics	0.12	0.13
	Reading	0.13	0.08
8	Mathematics	0.15	0.12
	Reading	0.12	0.15
	Science	0.08	0.09
10	Mathematics	0.13	0.11
	Reading	0.11	0.10
	Science	0.11	0.09

All the DETECT values for 2008–09 indicated very weak multidimensionality. The average DETECT values for the three content areas were 0.12 for mathematics, 0.11 for reading, and 0.10 for science. Table 9-1 also shows the values reported in last year’s dimensionality analyses. The DETECT indices for individual content areas for each grade level are very similar between the two years. In particular, both sets of values indicate very weak multidimensionality for all the tests; and, consequently, the averages for the three content areas for 2007–08 (0.13 for mathematics, 0.12 for reading, and 0.09 for science) are very close to the 2008–09 averages. DETECTs division of the tests into clusters was also investigated to look for any discernible patterns with respect to item type (i.e., MC and CR). Only the grade 7 mathematics test and the grade 4 science test had DETECT clusters that substantially separated the MC items from the CR items. This lack of separation of MC and CR items also occurred in the 2007–08 tests. Although clusters in all of the tests sometimes displayed a tendency to contain items that were near each other in terms of position on the test form, this pattern was not consistent across clusters. A more thorough investigation employing experts in the substantive content of test forms may result in identification of clusters related to the skills and knowledge areas measured by the items. In any case, the violations of local independence from all such effects, as evidenced by the DETECT effect sizes, were very small and do not warrant any changes in test design or scoring.

9.6 Item Response Theory Analyses

In addition to the classical test theory item analyses previously described, the Montana CRT was analyzed according to IRT models. IRT analyses were first used to place all 2008–09 forms on the same scale, and then to equate the 2008–09 test to the previous year’s test. Details on the IRT calibration and equating procedures for the Montana CRT are provided in chapter 10.

Chapter 10. SCALING AND EQUATING

The purpose of equating is to ensure that scores obtained from different forms of a test are equivalent to each other. The process may be used to equate multiple test forms administered during the same year or to equate test forms administered during one year to test forms administered during previous years. Equating ensures that students are not given an unfair advantage or disadvantage because the test form administered one year is easier or harder than the test form administered during another year. Once test scores for the forms are placed on an equivalent raw score scale, they are then translated, through the scaling process, to the score scale used for reporting. For the 2008–09 Montana CRT, equating was performed for reading, mathematics and science in grades 3 through 8 and 10.

10.1 General Rules

The Montana CRT equating plan includes the following general rules:

- The goal is to have as many items as possible on the common form constitute the equating set.
- The appearance of items used for equating cannot be altered in any way from the previous year.
- Whenever possible, items in the equating set should be located within five positions of their location in the previous test form.
- Passage sets selected for equating should consist of all, or most, of the items associated with the passage in the previous test form.
- As a whole, the equating set should mirror the characteristics of the common set in terms of content and statistics.

A DIF approach using the delta-plot method was applied to determine the final set of equating items for each grade level-content area combination. The 2007–08 and 2008–09 *p*-values of each MC item were transformed to the delta metric. The delta scale is an inverse normal transformation of percentage correct to a linear scale with a mean of 13 and a standard deviation of 4 (Holland & Wainer, 1993). A high delta value indicates a difficult item. For CR items, the average score divided by the maximum possible score (i.e., the adjusted *p*-value) was transformed to the delta metric. The delta values for the potential equating items were computed for each content area in each grade level.

Once all delta values were calculated for a particular content area and grade level, a trend line was fit to the set of points. The perpendicular distance from each item to the regression line was then computed. Items that were not more than three standard deviations from the regression line were used as equating items. As a result of the delta analyses, eight items were excluded for use as equating items, one each in the following content area-grade level combinations: reading in grades 3, 5, 8, and 10 and mathematics in grades 5, 7, 8, and 10. See Appendix F for delta analyses tables and rescore analyses results.

10.2 IRT Equating

Equating for the Montana CRT used the *anchor-test-nonequivalent-groups* design described by Petersen, Kolen & Hoover (1989). The fixed common-item IRT procedure was used: The anchor items from the previous year's administration were identified during this year's calibrations, and their IRT parameters were fixed to last year's values. This method results in all person and item parameters being on the same θ scale as they were in the previous year. The procedures used for equating and scaling do not change the rank ordering of students, give more weight to particular items, or change students' performance-level classifications. Note that the groups of students who took the Montana CRT in 2007–08 and 2008–09 were not equivalent. IRT is particularly useful for equating nonequivalent groups (Allen & Yen, 1979).

IRT uses mathematical models to define a relationship between an unobserved measure of student ability, usually referred to as theta (θ), and the probability (p) of getting a dichotomous item correct or of getting a particular score on a polytomous item. IRT assumes that all items are independent measures of the same construct or ability (i.e., the same θ). There are several IRT models commonly used to specify the relationship between θ and p . For the Montana CRT, the one parameter logistic (1PL) model was used for MC and SA items and the partial credit model was used for the CR items.

For polytomous items, the generalized partial credit model can be defined as:

$$P_{jk}(\theta) = \frac{\exp \sum_{v=0}^k [Da_j(\theta - b_j + d_v)]}{\sum_{c=1}^m \exp \sum_{v=1}^c [Da_j(\theta - b_j + d_v)]}$$

Where:

j indexes items,
 k indexes students,
 a represents item discrimination,
 b represents item difficulty,
 d represents category step parameter, and
 D is a normalizing constant equal to 1.701.

In the case of the Montana CRT, the a_j term in the equation is equal to 1.0 for all items. The equation reduces to the following for dichotomous items with no step parameters (d_v):

$$P_j(\theta) = \frac{\exp D(\theta - b_j)}{1 + \exp D(\theta - b_j)}$$

For more information about IRT and IRT models, refer to Hambleton and Swaminathan (1985).

The process of determining the specific mathematical relationship between θ and p is referred to as item calibration. Once items are calibrated, they are defined by a set of parameters that specify a nonlinear

relationship between θ and p . For more information about item calibration, refer to Lord and Novick (1968) or Hambleton and Swaminathan (1985).

PARSCALE v3.5 (Muraki & Bock, 1999) software was used to perform all IRT analyses for the Montana CRT. Appendix G provides the item parameter files resulting from the analyses. Each item occupied only one block in the calibration run, and the 1.701 normalizing constant was used. A default convergence criterion of 0.001 was used, and all calibrations converged within 32 iterations.

10.3 Translating Raw Scores to Scaled Scores and Performance Levels

Montana CRT scores in each content area are reported on a scale ranging from 200 to 300. Scaled scores supplement Montana CRT performance-level results by providing information about the position of a student's results within a performance level. School- and district-level scaled scores are calculated by computing the average of student-level scaled scores. Students' raw scores (total number of points) on the Montana CRT are translated to scaled scores using a data analysis process called *scaling*, which simply converts raw points from one scale to another. In the same way that distance can be expressed in miles or kilometers or monetary values can be expressed in U.S. dollars or Canadian dollars, student scores on each Montana CRT can be expressed as raw scores (i.e., number of points earned) or scaled scores. It is important to notice that the raw score to scale score conversion formulas vary from one grade level or content area to another, analogous to how currency exchange formulas vary from country to country. For example, the scaling conversion formula for Montana's grade 4 reading test differs from that of the grade 8 reading test.

It is important to note that converting from raw scores to scaled scores does not change students' performance-level classifications. Given the relative simplicity of raw scores, it is fair to ask why scaled scores instead of raw scores are used in Montana CRT reports. Foremost, scaled scores offer the advantage of simplifying result reporting across content areas, grade levels, and subsequent years. Because the standard-setting process typically results in different cut scores across content areas on a raw score basis, it is useful to transform these raw cut scores to a scale that is more easily interpretable and consistent. For the Montana CRT, a score of 225 is the cut score between the *Novice* and *Nearing Proficiency* performance levels. This is true regardless of content area, grade level, or year. For example, the raw cut score between *Novice* and *Nearing Proficiency* may be 35 in grade 8 mathematics but may be 33 in grade 10 mathematics. Using scaled scores greatly simplifies the task of understanding how a student performed.

Cut points for the Montana CRT in reading and mathematics were set at standard-setting meetings held in June and July 2006 and for the Montana CRT in science in June 2008. Cut points were established on the raw score scale, and these raw score cuts were used to determine the scaling coefficients for calculating the scores used for reporting. Cut points were also determined on the θ scale. For scaling in 2008–09, raw score equivalents for these θ -scale cut points were determined using the test characteristic curve (TCC), and these 2008–09 raw cuts were used to calculate transformation constants.

As previously stated, student scores on the Montana CRT are reported in integer values from 200 to 300, with three scores representing cut scores on each assessment. Two of the three cut points (*Novice/Nearing Proficiency* and *Nearing Proficiency/Proficient*) are pre-set at 225 and 250, respectively; the third cut point, between *Proficient* and *Advanced*, is allowed to vary across tests, depending on where the raw score cuts were placed. Allowing the upper cut to float results in a single conversion equation for each test; this simplifies interpretation of scaled scores and their summary statistics. Table 10-1 presents the scaled score range for each performance level in each grade level/content area combination.

Table 10-1. 2008–09 MontCAS: Scaled Score Range for each Performance Level

Grade	Content Area	Novice	Nearing Proficiency	Proficient	Advanced
3	Reading	200–224	225–249	250–286	287–300
	Mathematics	200–224	225–249	250–289	290–300
4	Reading	200–224	225–249	250–288	289–300
	Mathematics	200–224	225–249	250–290	291–300
	Science	200–224	225–249	250–280	281–300
5	Reading	200–224	225–249	250–286	287–300
	Mathematics	200–224	225–249	250–288	289–300
6	Reading	200–224	225–249	250–288	289–300
	Mathematics	200–224	225–249	250–286	287–300
7	Reading	200–224	225–249	250–287	288–300
	Mathematics	200–224	225–249	250–288	289–300
8	Reading	200–224	225–249	250–288	289–300
	Mathematics	200–224	225–249	250–282	283–300
	Science	200–224	225–249	250–282	283–300
10	Reading	200–224	225–249	250–288	289–300
	Mathematics	200–224	225–249	250–280	281–300
	Science	200–224	225–249	250–268	269–300

The scaled scores are obtained by transforming the cut-points (on the IRT θ scale) using the values of 225 and 250 on the scaled score metric and the cut points to define the transformation. The scaling coefficients were calculated using the following formulas:

$$m = \frac{225 - 250}{g(\theta_1) - g(\theta_2)}$$

$$b = 225 - (m)g(\theta_1) \text{ or } b = 250 - (m)g(\theta_2)$$

Where:

m is the slope of the line providing the relationship between θ and scaled scores,
 b is the intercept,

$g(\theta)$ is a nonlinear IRT-based transformation that is applied so that the scaled score cuts are kept the same as the ones that occurred for the 2006–07 test form; for science, $g(\theta) = \theta$, θ_1 is the cut point for the *Novice/Nearing Proficiency* cut, and θ_2 is the cut point for the *Nearing Proficiency/Proficient* cut.

Scaled scores were then calculated using the following linear transformation:

$$ss = m g(\theta_x) + b$$

Where:

θ_x represents the IRT ability parameter corresponding to a student's raw score, x .

The values obtained using this formula were rounded to the nearest integer and truncated, as necessary, so that no student received a score lower than 200 or higher than 300. Appendix H provides additional information regarding raw scores, scaled scores, performance-level descriptors, and content-specific descriptors.

Chapter 11. RELIABILITY

Although an individual item's performance is an important focus for evaluation, a complete evaluation of an assessment must also address the way items function together and complement one another. Tests that function well provide a dependable assessment of a student's level of ability. Unfortunately, no test can do this perfectly. A variety of factors can contribute to a given student's score being either higher or lower than his/her true ability. For example, a student may misread an item or mistakenly fill in the wrong bubble when he/she knows the answer. Collectively, extraneous factors that impact a student's score are referred to as measurement error. Any assessment includes some amount of measurement error; that is, no measurement is perfect. This is true of all academic assessments—some students will receive scores that underestimate their true ability, and other students will receive scores that overestimate their true ability. When tests have a high amount of measurement error, student scores are very unstable. Students with high ability may get low scores or vice versa. Consequently, one cannot reliably measure a student's true level of ability with such a test. Assessments that have less measurement error (i.e., errors are small on average and student scores on the test consistently represent students' ability) are described as "reliable."

There are a number of ways to estimate an assessment's reliability. One possible approach is to give the same test to the same students at two different points in time. If students receive the same scores on each test, then the extraneous factors affecting performance are small and the test is reliable. (This is referred to as test-retest reliability.) A potential problem with this approach is that students may remember items from the first administration or may have gained (or lost) knowledge or skills in the interim between the two administrations. A solution to the "remembering items" problem is to give a different but parallel test at the second administration. If student scores on each test correlate highly, the test is considered reliable. (This is known as alternate forms reliability, because an alternate form of the test is used in each administration.) This approach, however, does not address the problem that students may have gained (or lost) knowledge or skills in the interim between the two administrations. In addition, the practical challenges of developing and administering parallel forms generally preclude the use of parallel form reliability indices. One way to address these problems is to split the test in half and then correlate students' scores on the two half-tests; this in effect treats each half-test as a complete test. By doing this, the problems associated with an intervening time interval and of creating and administering two parallel forms of the test are alleviated. This is known as a split-half estimate of reliability. If the two half-test scores correlate highly, items on the two half-tests must be measuring very similar knowledge or skills. This is evidence that the items complement one another and function well as a group. This also suggests that measurement error will be minimal.

The split-half method requires psychometricians to select items that contribute to each half-test score. This decision may have an impact on the resulting correlation, since each different possible split of the test halves will result in a different correlation. Another problem with the split-half method of calculating reliability is that it underestimates reliability, because test length is cut in half. All else being equal, a shorter

test is less reliable than a longer test. Cronbach (1951) provided a statistic, alpha (α), that avoids the concerns of the split-half method by comparing individual item variances to total test variance. Cronbach's α was used to assess the reliability of the 2008–09 Montana CRT:

$$\alpha \equiv \frac{n}{n-1} \left[1 - \frac{\sum_{i=1}^n \sigma_{(Y_i)}^2}{\sigma_x^2} \right]$$

Where:

i indexes the item,

n is the total number of items,

$\sigma_{(Y_i)}^2$ represents individual item variance, and

σ_x^2 represents the total test variance.

Another approach to estimating the reliability for a test with differing item types (i.e., MC and CR) is to assume that at least a small but important degree of unique variance is associated with each item type (Feldt and Brennan, 1989); in contrast Cronbach's α assumes there are no such local or clustered dependencies. A stratified version of coefficient α corrects for this problem by using the following formula:

$$\alpha_{strat} = 1 - \frac{\sum_{j=1}^k \sigma_{x_j}^2 (1 - \alpha_j)}{\sigma_x^2}$$

Where:

j indexes the subtests or categories,

$\sigma_{x_j}^2$ represents the variance of each of the k individual subtests or categories,

α_j is the unstratified Cronbach's α coefficient for each subtest, and

σ_x^2 represents the total test variance.

11.1 Reliability and Standard Errors of Measurement

Table 11-1 provides descriptive statistics, the overall Cronbach's α coefficient for each grade level-content area combination, and raw score standard errors of measurement. Appendix I presents Cronbach's α for each test form in each content area separately for each grade level. The tables also show reliability coefficients separately for MC and CR (which includes SA in mathematics) items and stratified reliability coefficients that adjust for the fact that different item formats are included in the test.

Across the grades and content areas, the overall α coefficients, MC α coefficients, and stratified α coefficients range from the mid-0.80s to the low-0.90s. There is little or no difference between the overall α

and stratified α coefficients. The α coefficients for CR items are substantially lower, ranging from around 0.40 to around 0.70. These lower values can be explained, at least to some extent, by the fact that there are greater scoring inconsistencies for CR items and a relatively small number of these items on the test. Note that, for reading, it is possible that the reliability coefficients are inflated as a result of passage-based item dependency.

Table 11-1. 2008–09 MontCAS: Reliabilities, Standard Errors of Measurement and Descriptive Statistics by Grade and Content Area

Grade	Content Area	N	Total Points	Mean	SD	Rel	SEM
3	Mathematics	10250	66	44.92	11.81	0.91	3.52
	Reading	10225	60	38.36	10.34	0.91	3.19
4	Mathematics	10439	66	42.11	11.88	0.91	3.62
	Reading	10408	60	38.86	10.57	0.91	3.24
	Science	10449	61	40.41	8.94	0.85	3.44
5	Mathematics	10349	66	39.59	12.56	0.91	3.67
	Reading	10331	60	40.27	10.53	0.91	3.12
6	Mathematics	10371	66	37.69	12.73	0.92	3.59
	Reading	10377	60	40.49	10.49	0.91	3.13
7	Mathematics	10630	66	35.77	12.57	0.91	3.72
	Reading	10649	60	41.25	10.83	0.92	3.08
8	Mathematics	10622	66	36.78	12.66	0.91	3.79
	Reading	10635	60	42.61	10.70	0.92	3.06
	Science	10649	61	36.53	9.85	0.88	3.37
10	Mathematics	10590	65	31.83	11.94	0.90	3.85
	Reading	10606	60	41.68	10.41	0.91	3.12
	Science	10621	61	34.92	10.66	0.90	3.33

11.2 Subgroup Reliability

The reliability coefficients discussed in the previous section were based on the overall population of students who took the 2008–09 Montana CRT. Appendix I presents reliabilities for various subgroups of interest. Subgroup Cronbach's α 's were calculated using the formula defined above based only on the members of the subgroup in question in the computations. For reading, subgroup reliabilities ranged from 0.79 to 0.92, for mathematics from 0.69 to 0.92, and for science from 0.75 to 0.92.

For several reasons, the results of this subsection should be interpreted with caution. First, inherent differences between grades and content areas preclude making valid inferences about the quality of a test based on statistical comparisons with other tests. Second, reliabilities are dependent not only on the measurement properties of a test but on the statistical distribution of the studied subgroup. For example, subgroup sample sizes may vary considerably (see Appendix I), resulting in natural variation in reliability coefficients. Alpha, like any other correlation coefficient, may be artificially depressed for subgroups with little variability (Draper & Smith, 1998). Finally, there is no industry standard to interpret the strength of a reliability coefficient, and this is particularly true when the population of interest is a single subgroup.

11.3 Reporting Subcategories Reliability

In previous sections, the reliability coefficients were calculated based on form and item type. Item type represents just one way of breaking an overall test into subtests. Of even more interest are reliabilities for the reporting subcategories within Montana CRT content areas, described in Chapters 4 through 6.

Cronbach's α coefficients for subcategories were calculated via the same formula defined previously using just the items of a given subcategory in the computations. Results are presented in Appendix I. Once again as expected, because they are based on a subset of items rather than the full test, computed subcategory reliabilities were lower (sometimes substantially so) than were overall test reliabilities, and interpretations should take this into account.

For reading, subcategory reliabilities ranged from 0.49 to 0.82, for mathematics from 0.40 to 0.81, and for science from 0.13 to 0.72. The subcategory reliabilities were lower than those based on the total test and approximately to the degree one would expect based on classical test theory. Qualitative differences between grades and content areas once again preclude valid inferences about the quality of the full test based on statistical comparisons among subtests.

11.4 Reliability of Performance-Level Categorization

All test scores contain measurement error; thus classifications based on test scores are also subject to measurement error. After the performance levels were specified and students were classified into those levels, empirical analyses were conducted to determine the statistical accuracy and consistency of the classifications. For the Montana CRT, students are classified into one of four performance levels: *Novice* (N), *Nearing Proficiency* (NP), *Proficient* (P), or *Advanced* (A). This section of the report explains the methodologies used to assess the reliability of classification decisions, and results are given.

Accuracy refers to the extent to which decisions based on test scores match decisions that would have been made if the scores did not contain any measurement error. Accuracy must be estimated because errorless test scores do not exist.

Consistency measures the extent to which classification decisions based on test scores match the decisions based on scores from a second, parallel form of the same test. Consistency can be evaluated directly from actual responses to test items if two complete, parallel forms of the test are given to the same group of students. This is usually impractical, especially on lengthy tests. To overcome this issue, techniques have been developed to estimate both accuracy and consistency of classification decisions based on a single administration of a test. The technique developed by Livingston and Lewis (1995) was used for the Montana CRT because their technique can be used with both CR and MC items.

All of the accuracy and consistency estimation techniques described below make use of the concept of "true scores" in the sense of classical test theory. A true score is the score that would be obtained on a test that had no measurement error. It is a theoretical concept that cannot be observed, although it can be

estimated. In the Livingston and Lewis method, the estimated true score distribution is used to estimate the proportion of students in each “true” performance level. After various technical adjustments (which are described in Livingston and Lewis, 1995), a 4×4 contingency table was created for each content area test and grade level. The $[i,j]$ entry of an accuracy table represents the estimated proportion of students whose true score fell into performance level i and whose observed score fell into performance level j on the Montana CRT. Overall accuracy, which is the proportion of students whose true and observed performance levels match one another, is the sum of the numbers on the diagonal of the accuracy table.

To estimate consistency, the true scores are used to estimate the joint distribution of classifications on two independent, parallel test forms. After statistical adjustments (see Livingston and Lewis, 1995), a new 4×4 contingency table was created for each test and grade level that shows the proportion of students who would be classified into each performance level by the two (hypothetical) parallel test forms. That is, the $[i,j]$ entry of a consistency table represents the estimated proportion of students whose observed score on the first form would fall into performance level i and whose observed score on the second form would fall into performance level j . Overall consistency, which is the proportion of students classified into exactly the same performance level by the two forms of the test, is the sum of the numbers on the diagonal of this new contingency table.

Another way to measure consistency is to use Cohen’s (1960) coefficient κ (kappa), which assesses the proportion of consistent classifications after removing the proportion of consistent classifications that would be expected by chance. Cohen’s κ can be used to evaluate the classification consistency of a test from two parallel forms of the test. The two forms in this case were the hypothetical parallel forms used by the Livingston and Lewis method. Because κ is corrected for chance, the values of κ are lower than other consistency estimates.

11.5 Results of Accuracy, Consistency, and Kappa Analyses

Summaries of the accuracy and consistency analyses are provided in Appendix J. The first section of each table shows the overall accuracy and consistency indices as well as Kappa. The overall index is, as described above, the sum of the diagonal elements of the appropriate contingency table.

The second section of each table shows accuracy and consistency values conditional upon performance level. In each case, the denominator is the number of students who are associated with a given performance level. For example, the conditional accuracy value is 0.7770 for the *Proficient* category for Grade 4 mathematics. This indicates that, of the students whose true scores placed them in the *Proficient* category, 77.770% of them would be expected to be in the *Proficient* category if they were categorized according to their observed scores. The corresponding consistency value of .7113 indicates that 71.13% of students with observed scores in the *Proficient* performance level would be expected to score in *Proficient* again if a second, parallel test form were used.

For certain tests, concern may be greatest regarding decisions made about a particular threshold. For example, if a college gave credit to students who achieved an Advanced Placement test score of four or five, but not one, two, or three, one might be interested in the accuracy of the dichotomous decision, below four versus four or above. The third section of the summary tables shows information at each of the cut points. These values indicate the accuracy and consistency of the dichotomous decisions, either above or below the associated cut point. In addition, the false positive and false negative accuracy rates are also provided. These values are estimates of the proportion of students who were categorized above the cut when their true score would place them below the cut (false positive), and vice versa.

Chapter 12. VALIDITY SUMMARY

As stated in the overview chapter, the *Standards for Educational and Psychological Testing* (AERA, et al., 1999) provides a framework for describing sources of evidence that should be considered when constructing a validity argument. The evidence sources around test content, response processes, internal structure, relationship to other variables, and consequences of testing speak to different *aspects* of validity but are not distinct *types* of validity. Instead, each contributes to a body of evidence about the comprehensive validity of score interpretations.

Evidence on test content validity is meant to determine how well the assessment tasks represent the curriculum and standards for each content area and grade level. Content validation is informed by the item development process, including how the test blueprints and test items align to the curriculum and standards. Viewed through this lens provided by the Standards, evidence based on test content was extensively described in Chapters 2 through 6. Item alignment with Montana content standards; item bias, sensitivity and content appropriateness review processes; adherence to the test blueprint; use of multiple item types; use of standardized administration procedures, with accommodated options for participation; and appropriate test administration training are all components of validity evidence based on test content. As discussed earlier, all CRT questions are aligned by Montana educators to specific Montana content standards, and undergo several rounds of review for content fidelity and appropriateness. Items are presented to students in multiple formats (CR, SA and MC). Finally, tests are administered according to state-mandated standardized procedures, with allowable accommodations, and all test proctors are required to attend annual training sessions.

The scoring information in Chapter 8 describes the steps taken to train and monitor hand-scorers, as well as quality control procedures related to scanning and machine scoring. To speak to student response processes, however, additional studies would be helpful and might include an investigation of students' cognitive methods using think-aloud protocols.

Evidence based on internal structure is presented in great detail in the discussions of item analyses, reliability, and scaling and equating in Chapters 9 through 11. Technical characteristics of the internal structure of the assessments are presented in terms of classical item statistics (item difficulty, item-test correlation), differential item functioning analyses, dimensionality analyses, a variety of reliability coefficients, standard errors of measurement, and item response theory parameters and procedures. Each test is equated to the same grade and content test from the prior year in order to preserve the meaning of scores over time. In general, item difficulty and discrimination indices were in acceptable and expected ranges. Very few items were answered correctly at near-chance or near-perfect rates. Similarly, the positive discrimination indices indicate that most items were assessing consistent constructs, and students who performed well on individual items tended to perform well overall.

Evidence based on the consequences of testing is addressed in the scaled scores and reporting information in Chapters 11 and 12, as well as in the test interpretation guide, which is a separate document

that is referenced in the discussion of reporting. Each of these chapters speaks to the efforts undertaken to promote accurate and clear information provided to the public regarding test scores. Scaled scores offer the advantage of simplifying the reporting of results across content areas, grade levels, and subsequent years. Performance levels provide users with reference points for mastery at each grade level, which is another useful and simple way to interpret scores. Several different standard reports are provided to stakeholders. In addition, a data analysis tool is provided to each school system to allow educators the flexibility to customize reports for local needs. Additional evidence of the consequences of testing could be supplemented with broader investigation of the impact of testing on student learning.

To further support the validation of the assessment program, additional studies might be considered to provide evidence regarding the relationship of CRT results to other variables include the extent to which scores from the CRT converge with other measures of similar constructs, and the extent to which they diverge from measures of different constructs. Relationships among measures of the same or similar constructs can sharpen the meaning of scores and appropriate interpretations by refining the definition of the construct.

The evidence presented in this report supports inferences of student achievement on the content represented on the Montana content standards for reading, mathematics, and science for the purposes of program and instructional improvement and as a component of school accountability.

SECTION IV—MONTANA REPORTING

Chapter 13. REPORTING

The Montana CRT is designed to measure student performance against Montana's content standards. Consistent with this purpose, results on the CRT were reported in terms of performance levels that describe student performance in relation to these established state standards. There are four performance levels: *Advanced, Proficient, Nearing Proficiency, and Novice*. (The CRT performance-level descriptors are given in Appendix K as are student distributions within the raw and scaled score ranges of the performance levels.) Students receive a separate performance-level classification (based on total scaled score) in each content area.

State results were provided to OPI via a secure Web site. Reading and mathematics reporting data for the 2008–09 Montana CRT were made available to systems and schools online via the Montana Analysis and Reporting System (MARS) on June 10, 2008; science results for grade 4, 8 and 10 on September 2, 2008. Student Reports were delivered to schools on September 18, 2008. System test coordinators and teachers were also provided with copies of the *Guide to Interpreting the 2007 Criterion-Referenced Test and CRT-ALT Assessment Reports* to assist them in understanding the connection between the assessment and the classroom. The guide provides information about the assessment and the use of assessment results.

School- and system-level results are reported as the number and percentage of students attaining each performance level at each grade level tested. “Decision Rules” were formulated in early 2008 by OPI and Measured Progress to identify students who, during the reporting process, were to be excluded from school and system-level reports. A copy of these “Decision Rules” is included in this report as Appendix A. Disaggregations of students are also reported at the school and system levels. The CRT reports include:

- Student Reports (paper);
- Class Roster & Item-Level Reports (online/interactive);
- School Summary Reports (online/pdf); and
- System Summary Reports (online/pdf).

Sample Report Shells are included as Appendix L.

13.1 Montana Analysis and Reporting System (MARS)

Using advanced Web technology, *MARS* gives Montana educators and administrators the ability to filter data based on test year, grade level, content area, standard, and student subgroup. This allows administrators to isolate cross-sections of the results and identify areas of strong or poor performance.

The confidential nature of the data in *MARS* necessitates the strict enforcement of site security. All transmissions are done over Secure Socket Layers (SSL). A system of user role definitions and permissions dictates the scope of access granted to individual users. Organizations (system or school levels) are given

administrative power to grant or deny access to their data within the system, and have the ability to disable users. Personnel using *MARS* may be granted permission to view students' results at an organizational level, or only a select group as defined by the administrator. Predefined reports are included in the system, as is the ability to render and print additional copies.

SECTION IV—REFERENCES

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APPENDICES

Appendix A—REPORTING AND ANALYSIS DECISION RULES

Analysis and Reporting Decision Rules

Montana Comprehensive Assessment System (MontCAS) CRT and CRT-Alternate (Draft) Spring 08-09 Administration

This document details rules for analysis and reporting. The final student level data set used for analysis and reporting is described in the “Data Processing Specifications.” This document is considered a draft until the Montana Office of Public Instruction (OPI) signs off. If there are rules that need to be added or modified after said sign-off, OPI sign off will be obtained for each rule. Details of these additions and modifications will be in the Addendum section.

I. General Information

A. Tests Administered

Grade	Subject	Items included in Raw Score		IABS Reporting Categories (Standards) (Not Applicable for CRT-Alternate)
		CRT	CRT-Alt	
03	Reading Mathematics	Common	All	Cat2
04	Reading Mathematics	Common	All	Cat2
	Science	Common	All	Cat3
05	Reading Mathematics	Common	All	Cat2
06	Reading Mathematics	Common	All	Cat2
07	Reading Mathematics	Common	All	Cat2
08	Reading Mathematics	Common	All	Cat2
	Science	Common	All	Cat3
10	Reading Mathematics	Common	All	Cat2
	Science	Common	All	Cat3

B. Reports Produced

1. Student Labels
2. Student Report
3. Roster & Item Level Report (online system)
 - by grade, subject and class/group
4. Summary Report
 - Consists of sections:
 - I. Distribution of Scores
 - II. Subtest Results
 - III. Results for Subgroups of Students
 - by grade, subject and school
 - by grade, subject and system
 - by grade, subject (state level)

C. Files Produced (comma delimited format)

1. One state file for each grade
 - a. Consists of student level results
 - b. Alternately assessed students are in separate files by grade
2. Naming convention
 - a. CRT All subjects- Studentdatafile[2 digit grade].csv
 - b. CRT-Alternate All subjects- altStudentdatafile[2 digit grade].csv

D. School Type

Schtype	Source	Description	Included in Aggregations		
			School	System	State
"Pras"	Data file provided by state	Private Accredited School. They are their own system	Yes. Same information for school & system but both sets of reports produced	Yes. Same information for school & system but both sets of reports produced	No
"Prnas"	Data file provided by state	Private non-accredited school. They are their own system	Yes. Same information for school & system but both sets of reports produced	Yes. Same information for school & system but both sets of reports produced	No
"SNE"	Scanned data/updated by OPI	Student not enrolled	No	No	No
"Oth"		non-private school	Yes	Yes	Yes

E. Other Information

1. CRT Tests are constructed with a combination of common and embedded field test items.
2. The CRT-Alternate consists of a set of performance tasks. The tasks are grouped into five (5) sets of tasklets for each subject. The number of activities in each tasklet varies.
3. Braille Students:
 - a. There are 2 common items and 3 field test items that are not included in the Braille form of the test at Grade 3. (See Appendix A.1 for a list of the items not included in the Braille form.)
 - b. If a student is identified as taking the Braille test, these items are not included in the student's raw score. The student is scaled on a separate form based on the items that are available to him or her. See the Calculations section for more information.
4. Students using JAWS:¹
 - a. There is 1 reading common item and 2 math common items which were removed from a grade 7 students booklet in order for the JAWS to be used. (See Appendix A.2 for a list of these items.)

¹ JAWS (job access with speech) is a Windows® compatible screen reader application.

- b. If a student is identified as using the JAWS, these items are not included in the student's raw score. The student is scaled on a separate form based on the items that are available to him or her. See the Calculations section for more information.

II. Student Participation/Exclusions

A. Test Attempt Rules

1. A valid response to a multiple choice item is A, B, C, or D. An asterisk (multiple marks) is not considered a valid response.
2. Incomplete (CRT): The student has fewer than two (2) but at least one (1) valid response to common multiple choice items.
3. Incomplete (CRT-Alternate): The student responded to fewer than three (3) items.
4. The student is classified as Did Not Participate (DNP) in CRT if the student does not have any valid responses for that subject in either CRT or CRT-Alternate.

B. Not Tested Reasons

N/A

C. Student Participation Status

1. The following students are excluded from all aggregations.
 - a. Foreign Exchange Students (FXS)
 - b. Homeschooled students (schtype = "SNE")
 - c. Part-time students (PSNE)
 - d. DNP (for that subject)
 - e. First year LEP
 - f. Student tested with Non-Standard Accommodations (NSA for that subject)
2. If any of the non-standard accommodations are bubbled the student is considered tested with non-standard accommodations (NSA) in that subject.
3. If the student has not been in that school for the entire academic year the student is excluded from school level aggregations (NSAY).
4. If the student has not been in that system for the entire academic year the student is excluded from system and school level aggregations (NDAY).
5. If the student took the alternate assessment the student is not counted as participating in the general assessment. Alternate Assessment students receive their results on an Alternate Assessment Student Report. They are reported according to participation rules stated in this document.
6. (CRT-Alternate) If the teacher halted the administration of the assessment after the student scored zero (0) for three (3) consecutive items within tasklets, the student is classified as Halted in that subject. If the student was halted within a tasklet then the rest of the items within the tasklet are blanked out and do not count toward the student's score. If the other tasklets are complete then those items will be counted toward the student's score.
7. If the student took the Braille form of the Grade 3 test the raw scores are not included in raw score school, system or state averages. They are not included in group averages on the interactive roster.
8. If the student used JAWS the raw scores are not included in raw score school, system or state averages. They are not included in group averages on the interactive roster.

D. Student Participation Summary

Participation Status	Part. Flag	Raw score	Scaled Score	Perf. Level	Included on Roster	Included in Aggregations		
						School	System	State
FXS	E	✓	✓	✓				
SNE	E	✓	✓	✓				
PSNE	E	✓	✓	✓				
NSA(by subject)	A	✓	✓	✓	✓			
First year LEP	A	✓	See Report Specific Rules	See Report Specific Rules	✓	Only in count of First year LEP		
NSAY only	B	✓	✓	✓	✓	✓	✓	✓
NDAY	C	✓	✓	✓	✓			✓
ALT*	A	✓	✓	✓	✓	See footnote below		
Incomplete	A	✓	✓	✓	✓			
DNP (Non-Participants)	F	✓	✓	✓	✓			
Halted(CRT-Alt only by subject)	D	✓	✓	✓	✓	✓	✓	✓
Tested	Z	✓	✓	✓	✓	✓	✓	✓

* Alternate assessment students are included only in the count of alternate assessment students in general assessment reports. They are included in summary data only for alternate assessment reports (according to participation rules).

If a student has conflicting participation statuses the following hierarchy is applied to determine how the student is reported:

- F (Student attempted no common items and is not alt)
- E (FXS, SNE or PSNE)
- A (NSA, first year LEP, ALT or INC)
- C (NDAY)
- B (NSAY)
- Z (completed CRT and none of the above conditions apply)

III. Calculations

A. Raw Scores

1. (CRT) Raw scores are calculated using the scores on common multiple choice and open response items.
2. (CRT-Alternate) Raw score is the sum of the individual item scores.

B. Scaling

1. Scaling is accomplished by defining the unique set of test forms for each grade/subject combination. This is accomplished as follows:

- a. Translate each form and position into the unique item number assigned to the form/position.
 - b. Order the items by
 - I. Type-multiple choice, short-answer, constructed-response
 - II. Form-common, then by ascending form number
 - III. Position
 - c. If an item number is on a form, then set the value for that item number to “1”, otherwise set to “.”. Set the exception field to “0” to indicate this is an original test form.
 - d. If an item number contains an ‘X’ (item is not included in scaling) then set the item number to ‘.’. Set the exception field to ‘1’ to indicate this is not an original test form.
 - e. Compress all of the item numbers together into one field in the order defined in step II to create the test for the student.
 - f. Select the distinct set of tests from the student data and order by the exception field and the descending test field.
 - g. Check to see if the test has already been assigned a scale form by looking in the tblScaleForm table. If the test exists then assign the existing scale form. Otherwise assign the next available scale form number. All scale form numbering starts at 01 and increments by 1 up to 99.
2. Psychometrics provides a lookup table for each scale form. These lookup tables are used to assign scaled scores, performance levels and standard errors.
 3. The scaled score cuts for all three subjects and all grades have been fixed and are the same as last year for the CRT.

C. The classcode is created using the following steps:

1. The following students are not included when creating the class codes.
 - SNE
 - ALT(CRT-only)
 - FXS
 - PSNE
2. The dataset (by grade) is sorted by schcode and class/group name
3. The records are then numbered consecutively starting at 1. This number is then padded with zeros (in front) to create a 3 digit number.

D. Performance Level coding:

Numeric Performance Level	Performance Level Name	Abbreviation
1(lowest)	Novice	N
2	Nearing Proficient	NP
3	Proficient	P
4(highest)	Advanced	A

E. Rounding Table

Calculation	Rounded (to the nearest)
Static Reports: Percents and averages	Whole number
Item averages: Multiple choice items	The average is multiplied by 100 and rounded to the nearest whole number.
Item averages: Open response items	Open-response item averages are rounded to the nearest tenth.

F. Minimum N size

1. The number of included students (N) in a subject is the number of students in the school/system/state minus FXS minus PRAS minus PRNAS minus PSNE minus SNE minus First year LEP minus Incomplete minus NSA minus DNP.
2. Minimum N size is 10.
3. School/system reports are produced regardless of N size.

G. The common items are used in reporting the average number of points for each standard.

H. Assignment of rperlevel

1. If the student is marked as taking the CRT-Alt the rperlevel = "A" otherwise
2. If the student is classified as did not participate (DNP) then rperlevel = "D" otherwise
3. If the student is Incomplete in a subject and not marked first year LEP rperlevel = "I" otherwise
4. If the student does not complete the reading test and is marked first year LEP rperlevel = "L" for all subjects otherwise
5. If the student does not meet any of the above conditions then rperlevel = perflevel.

IV. Report Specific Rules

A. Student Label

1. If a student is First year LEP and incomplete in Reading, the Reading performance level is 'LEP'. The reading scaled score is blank.
2. If a student is First year LEP, the math and science performance levels are the name of the earned performance level and the scaled scores are the student's earned score.
3. If the student is not first year LEP, the performance level name corresponding to the student's earned score is displayed.
4. If the student is First year LEP but is not incomplete in Reading then the student receives his earned scaled score and performance level.
5. If the student is DNP the student receives a student label. The student receives scaled score = 200 and performance level = Novice.

B. Student Report

1. If a student is First year LEP and incomplete in Reading the Reading performance level is 'LEP' and the scaled score is blank.
2. If the student is First year LEP but is not incomplete in Reading then the student receives his earned scaled score and performance level.
3. If a student is First year LEP, the math and science performance levels are the name of the earned performance level and the scaled score is the student's earned score.

4. If the student is not first year LEP, the performance level name corresponding to the student's earned score is displayed.
 5. If the student is incomplete the student receives the scores with a footnote (†) "Student did not complete the assessment."
 6. If the student is NSA the student receives his scores with the footnote (§) "Student took non-standard accommodation."
 7. If there is no last name or first name for the student, the name displayed is "Name Not Provided."
- Alt students who are halted receive their scores and performance level and a footnote (§)
 "Teacher halted the administration of one or more of the five tasklets after the student scored a 0 for three consecutive items within a tasklet on two different test administrations. Any completed tasklets have been scored and are reflected in the student's scaled score."
8. If the student is DNP the student receives a Student Report. The student receives scaled score = 200 and performance level = Novice. The standards will not be reported. The student receives a footnote (**) "Student did not participate."
 9. Total Points Possible, Student % of points earned, and Average state % are suppressed for students who took Braille test (Braille = "1") or who used JAWS (JAWS = "1"). This suppression is applied only to the standards which contain the items not on the student's form.
 10. In section 1 a diamond represents the student's earned scaled score for that subject. The bar is drawn using the high and low scaled score values provided by psychometrics.
 11. In section 2, a check mark (✓) is placed in the gray area corresponding to the student's earned performance level for that subject.
 12. % sign is printed in each cell for the state percentages in section 2.
 13. If science is not assessed at the grade of the student the science sections are left blank.
 14. The following standards are not reported for either CRT or CRT-Alt:
 - a. Reading standard 3
 - b. Mathematics standard 1
 - c. Science standards 5 and 6

C. Roster & Item Level Report—Alternate Assessment only

1. If a student is First year LEP and the student is not incomplete in Reading:
 - a. The math (and science) performance level is the abbreviation of the earned performance level and the scaled score is the student's earned score.
 - b. The reading performance level is the abbreviation of the earned performance level and the scaled score is the student's earned score.
 - c. The student is excluded from Reading, Math and Science aggregations.
2. If the student is First year LEP and incomplete in Reading
 - a. The student's Reading, Math (and Science) performance levels are 'LEP'.
 - b. The student's math (and science) scaled score is the student's earned scaled score and the reading scaled score is blank.
 - c. The student's responses for all subjects are displayed.
 - d. The student is excluded from Math, Reading (and Science) aggregations.
3. If the student is not first year LEP, the performance level abbreviation corresponding to the student's earned score is displayed.
4. If the student is incomplete the student receives the scores with a footnote (†) "Student did not complete the assessment."
5. If the student is NSA the student will receive his scores with the footnote (§) "Student took non-standard accommodation."

6. There is no last name or first name for the student, the name displayed is “Name Not Provided”.
 7. If class/group information is missing the roster is done at the school level.
 8. Alternate Assessment students are reported only on their class/group/school’s alternate *Roster & Item Level Report*.
 9. If the student is a Non-Participant the student is listed on the *Roster & Item Level Report*. All responses and scores will be blank. The scaled score = 200 and performance level = N. The student will receive the footnote “Student did not participate in assessment.”
- D. Interactive Roster – CRT only
1. Students who test with Non-Standard Accommodations (NSA) are included in school, system and state level aggregations.
 2. Students who are NSAY are included in school, system and state level aggregations.
 3. Students who are NDAY are included in school, system and state level aggregations.
 4. Students who are DNP in a subject are reported with scaled score = 200 and performance level = “DNP”.
 5. Students who are Incomplete in a subject are reported with their earned scaled score and performance level = “INC” on the interactive roster.
 6. Students who are first-year LEP and who complete the reading test are reported with their earned scaled score and performance level and are included in school, system and state level aggregations for all subjects unless otherwise excluded based on completeness in math or science.
 7. Students who are first-year LEP and who do not complete the reading test are reported with their earned scaled score and performance level = “LEP” for all subjects. These students are excluded from school, system and state level aggregations.
 8. Students who participated in Alternate assessment are listed on the rosters. Their scaled score is blank and the performance level = “ALT”. These students are no included in aggregations.
 9. The items are reported using the released item number.
 10. Students who took Braille form or who used JAWS are not included in any aggregations. These students have a scaleform other than 01.
 11. Students to be included in roster aggregations are marked with a 1 in the “Included” field in *tblscoreditem*. Otherwise, included = “0.”
 12. Students with participation status E are not available on the interactive site.
 13. State level item averages do not include students with school type PRAS, PRNAS or SNE.
 14. District level item averages do not include students who are marked nday = “1.”

E. School Summary

1. Section III (Results for Subgroups of Students)
 - a. Performance level results for subgroups with N less than 10 are suppressed. N is always reported. Footnote * ‘Less than 10 students were assessed.’
 - b. Count of students who are considered NSA for that subject excluding those students who are incomplete, nsay (at school level), nday (at school and system level) or FXS or SNE or PSNE or First year LEP or alt (general assessment report).
 - c. Count of students who are alt excludes those students who are nsay (at school level), nday (at school or system level) or incomplete or FXS or SNE or PSNE or NSA or First year LEP.

- d. Count of First year LEP students excludes those students who are nsay (at school level), nday (at school or system level) or incomplete or FXS or SNE or PSNE or NSA or alt (general assessment).
- e. Students with scaleform other than 01 are not included in Subtest Results for standards containing items not available to them on their test.

V. Data File Rules (comma delimited format)

- 1. The following students are not included in the state file
 - a. Alternate Assessment students (in CRT)
 - b. Homeschooled students (SNE)
 - c. Part-Time students (PSNE)
- 2. If the student receives a performance level ‘LEP’ on the student report in Reading, the student receives LEP for the Reading performance level in the state files.
- 3. Alt students who are halted are marked ‘1’ in the halted field for that subject.
- 4. Student’s who take the Braille form of the test are flagged Braille = “1” in the state and system level files.
- 5. Student’s who use JAWS are flagged JAWS = “1” in the state and system level files.
- 6. In the system level files only the released scored items are included.

VI. Shipping Product Code Summary

- 1. School (ReportFor = “1”)

Grade	Report Name	ReportType	Subject	ContentCode	Quantity
03	Student Labels (CRT)	03	Reading and Math	00	1 set for each school
04	Student Labels (CRT)	03	Reading, Math and Science	00	1 set for each school
05	Student Labels (CRT)	03	Reading and Math	00	1 set for each school
06	Student Labels (CRT)	03	Reading and Math	00	1 set for each school
07	Student Labels (CRT)	03	Reading and Math	00	1 set for each school
08	Student Labels (CRT)	03	Reading Math and Science	00	1 set for each school
10	Student Labels (CRT)	03	Reading Math and Science	00	1 set for each school

Grade	Report Name	ReportType	Subject	ContentCode	Quantity
03	Student Report (CRT)	02	Reading and Math	00	1 for each student
04	Student Report (CRT)	02	Reading Math and Science	00	1 for each student
05	Student Report (CRT)	02	Reading Math	00	1 for each student
06	Student Report (CRT)	02	Reading and Math	00	1 for each student
07	Student Report (CRT)	02	Reading and Math	00	1 for each student
08	Student Report (CRT)	02	Reading Math and Science	00	1 for each student
10	Student Report (CRT)	02	Reading Math and Science	00	1 for each student
03	Student Labels (CRT-Alt)	07	Reading and Math	00	1 set for each school
04	Student Labels (CRT-Alt)	07	Reading, Math and Science	00	1 set for each school
05	Student Labels (CRT-Alt)	07	Reading and Math	00	1 set for each school
06	Student Labels (CRT-Alt)	07	Reading and Math	00	1 set for each school

Grade	Report Name	ReportType	Subject	ContentCode	Quantity
07	Student Labels (CRT-Alt)	07	Reading and Math	00	1 set for each school
08	Student Labels (CRT-Alt)	07	Reading Math and Science	00	1 set for each school
10	Student Labels (CRT-Alt)	07	Reading Math and Science	00	1 set for each school
03	Student Report (CRT-Alt)	08	Reading and Math	00	1 for each student
04	Student Report (CRT-Alt)	08	Reading Math and Science	00	1 for each student
05	Student Report (CRT-Alt)	08	Reading Math	00	1 for each student
06	Student Report (CRT-Alt)	08	Reading and Math	00	1 for each student
07	Student Report (CRT-Alt)	08	Reading and Math	00	1 for each student
08	Student Report (CRT-Alt)	08	Reading Math and Science	00	1 for each student
10	Student Report (CRT-Alt)	08	Reading Math and Science	00	1 for each student
00	Interp. Guide	04		00	1 per school

Appendix A

1. Items not available on the Braille form

Grade	Subject	Form	Position	Reporting Category
03	Rea	01	12	5
03	Rea	01	50	2
03	Rea	00	71	2
03	Mat	00	67	4
03	Mat	01	73	5

2. Common Items removed from Grade 7 student using JAWS

Grade	Subject	Form	Position	Reporting Category
07	Rea	00	77	2
07	Mat	00	23	7
07	Mat	00	24	4

All field test items were removed.

Addenda

- E. Students with partstatus = "E" in either subject are not included in the interactive site.

Appendix B—ACCOMMODATION FREQUENCIES BY CONTENT AREA

Table B-1. 2008–09 MontCAS: Accommodation Frequencies by Content Area—Grades 3–5

Accommodation	Grade 3		Grade 4			Grade 5	
	Mathematics	Reading	Mathematics	Reading	Science	Mathematics	Reading
01	223	236	303	307	297	186	191
02	402	429	580	579	545	471	499
04	234	259	246	262	220	262	282
05	1372	1332	1563	1524	1427	1392	1370
06	224	216	306	304	279	274	281
07	984	967	1126	1089	1012	1003	993
08	1083	1062	1229	1194	1079	1071	1067
09	6	5	13	13	13	11	11
10	9	8	10	10	12	9	13
12	0	0	2	2	2	0	0
13	0	3	5	5	5	3	3
14	9	8	2	2	2	2	2
15	8	9	3	3	2	3	3
16	0	0	2	0	0	0	0
17	0	0	4	4	2	3	3
18	2	2	4	8	8	8	6
19	147	197	176	243	228	140	221
20	14	16	28	29	25	20	20
21	3	3	3	3	3	9	12
22	1406	898	1367	907	1300	1158	727
23	22	21	19	18	18	15	15
24	78	74	90	93	81	118	123
25	87	84	96	81	100	133	132
26	3	3	0	3	3	2	0
27	10	10	19	17	17	8	9
28	3	3	20	5	20	15	9
29		64		61			53
30		31		24		31	
31		6		2			6
32		6		2		6	
33					3		

Table B-2. 2008–09 MontCAS: Accommodation Frequencies by Content Area—Grades 6–10

Accommodation	Grade 6		Grade 7		Grade 8			Grade 10		
	Mathematics	Reading	Mathematics	Reading	Mathematics	Reading	Science	Mathematics	Reading	Science
01	174	172	174	168	158	162	153	198	201	192
02	426	423	375	391	362	356	344	256	261	257
04	203	207	126	118	125	131	111	72	65	73
05	1213	1202	796	803	793	766	754	616	639	616
06	163	169	129	129	96	99	93	87	87	87
07	791	766	453	445	403	412	388	282	285	266
08	761	750	426	415	410	409	388	330	335	318
09	10	12	6	6	10	10	10	3	3	4
10	17	17	61	61	33	36	34	7	7	7
12	5	3	0	2	2	2	0	2	4	2
13	8	7	6	9	3	3	3	2	4	2
14	7	6	2	2	0	0	0	4	4	4
15	4	6	2	2	4	4	4	3	3	3
16	4	7	0	7	2	4	4	2	8	2
17	2	0	2	2	0	0	0	2	0	0
18	8	5	5	3	7	8	10	6	8	7
19	83	106	58	73	40	52	48	18	28	22
20	25	28	13	15	16	17	16	0	4	0
21	3	6	5	5	4	5	5	2	4	3
22	921	569	587	361	562	324	565	249	161	253
23	10	6	4	5	4	2	5	5	9	5
24	85	91	52	52	43	42	40	21	21	21
25	115	118	140	139	124	122	122	49	47	49
26	2	2	0	2	2	3	2	3	5	0
27	13	11	7	7	7	6	6	7	7	7
28	5	3	2	7	4	5	3	3	3	3
29		56		51		40			46	
30	61		66		48			57		
31		8		3		2			0	
32	6		5		2			0		
33						2				0

Appendix C—ITEM-LEVEL CLASSICAL STATISTIC RESULTS

**Table C-1. 2008-09 MontCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Mathematics Grade 3**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
3	Mathematics	0	1	MC	10250	0.20	0.95	0.27
		0	2	MC	10250	0.40	0.81	0.27
		0	3	MC	10250	0.60	0.86	0.33
		0	4	MC	10250	0.50	0.73	0.43
		0	5	MC	10250	0.80	0.67	0.40
		0	8	MC	10250	0.80	0.65	0.46
		0	9	MC	10250	0.90	0.63	0.51
		0	10	MC	10250	1.30	0.48	0.34
		0	11	MC	10250	0.80	0.73	0.36
		0	12	MC	10250	0.60	0.68	0.30
		0	13	MC	10250	1.20	0.60	0.46
		0	14	MC	10250	1.50	0.82	0.29
		0	15	MC	10250	0.60	0.72	0.54
		0	18	MC	10250	0.90	0.90	0.28
		0	19	MC	10250	0.60	0.50	0.36
		0	20	MC	10250	0.80	0.79	0.38
		0	21	MC	10250	1.40	0.44	0.32
		0	22	MC	10250	2.10	0.81	0.35
		0	23	SA	10250	1.40	0.63	0.44
		0	24	SA	10250	0.40	0.72	0.43
		0	25	CR	10250	0.60	2.47	0.54
		0	26	MC	10250	0.40	0.87	0.27
		0	27	MC	10250	0.50	0.79	0.45
		0	28	MC	10250	0.90	0.81	0.37
		0	29	MC	10250	0.50	0.64	0.39
		0	30	MC	10250	1.30	0.66	0.41
		0	31	MC	10250	0.70	0.68	0.26
		0	35	MC	10250	0.50	0.66	0.48
		0	36	MC	10250	1.00	0.69	0.45
		0	37	MC	10250	1.10	0.52	0.36
		0	38	MC	10250	1.00	0.88	0.40
		0	39	MC	10250	1.60	0.51	0.43
		0	40	MC	10250	0.80	0.64	0.38
		0	41	MC	10250	1.40	0.39	0.30
		0	42	MC	10250	1.10	0.94	0.18
		0	43	MC	10250	0.50	0.59	0.46
		0	44	MC	10250	0.80	0.71	0.44
		0	45	MC	10250	1.60	0.87	0.43
		0	46	MC	10250	0.60	0.61	0.27
		0	47	MC	10250	0.80	0.77	0.46
		0	48	SA	10250	0.30	0.82	0.36
		0	51	MC	10250	0.20	0.90	0.26
		0	52	MC	10250	0.70	0.84	0.28
		0	53	MC	10250	0.60	0.81	0.37
		0	54	MC	10250	1.40	0.37	0.39
		0	55	MC	10250	1.00	0.66	0.47
		0	56	MC	10250	0.60	0.62	0.27
		0	60	MC	10250	1.20	0.85	0.33

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
3	Mathematics	0	61	MC	10250	0.90	0.68	0.30
		0	62	MC	10250	0.80	0.55	0.23
		0	63	MC	10250	1.70	0.80	0.39
		0	64	MC	10250	1.50	0.77	0.46
		0	65	MC	10250	1.20	0.66	0.42
		0	66	MC	10250	2.50	0.63	0.26
		0	67	MC	10250	1.10	0.53	0.40
		0	68	MC	10250	0.70	0.56	0.41
		0	69	MC	10250	1.20	0.48	0.32
		0	70	MC	10250	1.90	0.66	0.31
		0	71	MC	10250	1.90	0.79	0.39
		0	72	CR	10250	0.40	2.07	0.61
		1	6	MC	1288	0.60	0.81	0.53
		1	7	MC	1288	0.50	0.84	0.33
		1	16	MC	1288	1.30	0.36	0.41
		1	17	MC	1288	0.80	0.61	0.27
		1	32	MC	1288	0.50	0.84	0.38
		1	33	MC	1288	0.30	0.89	0.36
		1	34	MC	1288	0.80	0.75	0.49
		1	49	SA	1287	0.40	0.80	0.47
		1	50	CR	752	0.50	1.54	0.45
		1	57	MC	1288	0.90	0.25	0.13
		1	58	MC	1288	0.90	0.88	0.35
		1	59	MC	1288	1.40	0.91	0.36
		1	73	CR	752	0.80	2.54	0.49
		2	6	MC	1300	1.00	0.53	0.46
		2	7	MC	1300	0.30	0.89	0.21
		2	16	MC	1300	0.70	0.77	0.39
		2	17	MC	1300	0.40	0.45	0.37
		2	32	MC	1300	0.50	0.85	0.39
		2	33	MC	1300	1.30	0.94	0.28
		2	34	MC	1300	1.10	0.70	0.49
		2	49	SA	1300	0.30	0.77	0.48
		2	50	CR	760	0.10	1.44	0.49
		2	57	MC	1300	0.80	0.77	0.51
		2	58	MC	1300	1.40	0.40	0.40
		2	59	MC	1300	1.40	0.36	0.14
		2	73	CR	758	1.10	2.52	0.54
		3	6	MC	1281	0.80	0.77	0.32
		3	7	MC	1281	0.10	0.80	0.47
		3	16	MC	1281	1.50	0.45	0.22
		3	17	MC	1281	0.30	0.65	0.30
		3	32	MC	1281	0.50	0.79	0.49
		3	33	MC	1281	0.80	0.75	0.32
		3	34	MC	1281	1.30	0.74	0.27
		3	49	SA	1281	0.10	0.83	0.29
		3	50	CR	762	0.30	0.96	0.52
		3	57	MC	1281	0.90	0.88	0.32
		3	58	MC	1281	1.50	0.85	0.31
		3	59	MC	1281	1.90	0.76	0.27

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
3	Mathematics	3	73	CR	764	2.00	1.88	0.62
		4	6	MC	1267	0.20	0.38	0.10
		4	7	MC	1267	0.40	0.85	0.36
		4	16	MC	1267	1.80	0.49	0.21
		4	17	MC	1267	0.90	0.84	0.31
		4	32	MC	1267	0.50	0.38	0.30
		4	33	MC	1267	0.60	0.89	0.44
		4	34	MC	1267	0.90	0.55	0.49
		4	49	SA	1266	0.00	0.74	0.39
		4	50	CR	752	0.30	0.97	0.55
		4	57	MC	1267	0.90	0.49	0.38
		4	58	MC	1267	0.90	0.47	0.35
		4	59	MC	1267	0.60	0.52	0.27
		4	73	CR	755	1.10	1.68	0.62
		5	6	MC	1264	0.90	0.51	0.33
		5	7	MC	1264	0.30	0.83	0.39
		5	16	MC	1264	1.10	0.52	0.10
		5	17	MC	1264	1.00	0.38	0.33
		5	32	MC	1264	0.80	0.69	0.45
		5	33	MC	1264	0.40	0.96	0.21
		5	34	MC	1264	1.30	0.27	0.03
		5	49	SA	1263	0.10	0.73	0.34
		5	50	CR	752	0.30	2.33	0.60
		5	57	MC	1264	0.90	0.45	0.29
		5	58	MC	1264	1.20	0.63	0.51
		5	59	MC	1264	1.10	0.67	0.31
		5	73	CR	756	1.90	2.29	0.57
		6	6	MC	1287	0.60	0.38	0.32
		6	7	MC	1287	0.20	0.44	-0.01
		6	16	MC	1287	0.80	0.66	0.23
		6	17	MC	1287	0.00	0.84	0.39
		6	32	MC	1287	0.30	0.95	0.23
		6	33	MC	1287	0.90	0.31	0.21
		6	34	MC	1287	1.40	0.25	0.28
		6	49	SA	1287	1.00	0.57	0.46
		6	50	CR	758	0.40	2.37	0.61
		6	57	MC	1287	0.50	0.69	0.51
		6	58	MC	1287	0.70	0.85	0.44
		6	59	MC	1287	1.20	0.97	0.22
		6	73	CR	762	1.40	2.34	0.56
		7	6	MC	1291	0.70	0.83	0.45
		7	7	MC	1291	0.50	0.91	0.38
		7	16	MC	1291	1.50	0.58	0.48
		7	17	MC	1291	0.50	0.64	0.21
		7	32	MC	1291	0.60	0.91	0.35
		7	33	MC	1291	1.50	0.43	0.45
		7	34	MC	1291	0.70	0.88	0.29
		7	49	SA	1291	0.50	0.75	0.39
		7	50	CR	0			
		7	57	MC	1291	1.00	0.46	0.36

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
3	Mathematics	7	58	MC	1291	1.10	0.52	0.34
		7	59	MC	1291	1.90	0.47	0.42
		7	73	CR	759	1.40	2.10	0.60
		8	6	MC	1272	0.90	0.54	0.34
		8	7	MC	1272	0.50	0.85	0.34
		8	16	MC	1272	1.00	0.72	0.35
		8	17	MC	1272	0.60	0.81	0.30
		8	32	MC	1272	0.90	0.73	0.56
		8	33	MC	1272	0.90	0.92	0.32
		8	34	MC	1272	1.70	0.73	0.37
		8	49	SA	1271	0.30	0.84	0.36
		8	50	CR	0			
		8	57	MC	1272	0.70	0.65	0.31
		8	58	MC	1272	1.40	0.43	0.22
		8	59	MC	1272	1.50	0.77	0.33
		8	73	CR	760	2.10	2.05	0.54

**Table C-2. 2008-09 MontCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Reading Grade 3**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
3	Reading	0	1	MC	10225	0.20	0.87	0.38
		0	2	MC	10225	0.20	0.53	0.36
		0	3	MC	10225	0.40	0.84	0.32
		0	4	MC	10225	0.70	0.80	0.36
		0	5	MC	10225	0.30	0.65	0.37
		0	6	MC	10225	0.40	0.76	0.37
		0	7	MC	10225	1.50	0.73	0.35
		0	15	MC	10225	0.50	0.84	0.45
		0	16	MC	10225	0.50	0.84	0.54
		0	17	MC	10225	0.80	0.87	0.35
		0	18	MC	10225	0.80	0.46	0.24
		0	19	MC	10225	0.90	0.45	0.46
		0	20	MC	10225	1.10	0.41	0.37
		0	21	MC	10225	0.50	0.61	0.29
		0	22	MC	10225	0.60	0.71	0.41
		0	23	MC	10225	0.90	0.64	0.43
		0	24	MC	10225	0.70	0.77	0.44
		0	25	MC	10225	1.90	0.44	0.27
		0	26	MC	10225	1.80	0.53	0.23
		0	27	CR	10225	0.80	1.33	0.47
		0	28	MC	10225	0.40	0.71	0.44
		0	29	MC	10225	0.40	0.74	0.34
		0	30	MC	10225	0.30	0.79	0.33
		0	31	MC	10225	0.50	0.70	0.30
		0	32	MC	10225	1.00	0.83	0.42
		0	33	MC	10225	1.60	0.67	0.37
		0	34	MC	10225	2.10	0.66	0.30
		0	35	MC	10225	0.50	0.54	0.31
		0	36	MC	10225	0.60	0.49	0.24
		0	37	MC	10225	1.20	0.74	0.40
		0	38	MC	10225	1.80	0.68	0.32
		0	39	MC	10225	2.10	0.71	0.32
		0	40	MC	10225	0.60	0.67	0.39
		0	41	MC	10225	1.00	0.77	0.34
		0	55	MC	10225	0.40	0.68	0.46
		0	56	MC	10225	0.60	0.65	0.45
		0	57	MC	10225	0.40	0.61	0.45
		0	58	MC	10225	1.50	0.60	0.39
		0	59	MC	10225	0.30	0.70	0.45
		0	60	MC	10225	0.50	0.87	0.42
		0	61	MC	10225	1.60	0.83	0.26
		0	69	MC	10225	0.60	0.64	0.49
		0	70	MC	10225	0.70	0.71	0.26
		0	71	MC	10225	1.10	0.71	0.30
		0	72	MC	10225	1.70	0.58	0.26
		0	73	MC	10225	0.60	0.53	0.40
		0	74	MC	10225	0.90	0.81	0.45
		0	75	MC	10225	1.50	0.67	0.45

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
3	Reading	0	76	MC	10225	0.90	0.85	0.42
		0	77	MC	10225	1.00	0.52	0.36
		0	78	MC	10225	1.30	0.69	0.52
		0	79	MC	10225	0.60	0.46	0.22
		0	80	MC	10225	1.40	0.82	0.43
		0	81	CR	10225	0.60	1.64	0.49
		1	8	MC	1287	0.40	0.82	0.32
		1	9	MC	1287	0.20	0.75	0.51
		1	10	MC	1287	0.70	0.53	0.51
		1	11	MC	1287	1.10	0.71	0.22
		1	12	MC	1287	0.80	0.54	0.24
		1	13	MC	1287	1.10	0.37	0.22
		1	14	MC	1287	1.70	0.37	0.20
		1	42	MC	1287	0.50	0.53	0.21
		1	43	MC	1287	0.90	0.67	0.49
		1	44	MC	1287	1.20	0.59	0.30
		1	45	MC	1287	0.90	0.58	0.33
		1	46	MC	1287	1.20	0.37	0.14
		1	47	MC	1287	2.00	0.55	0.36
		1	48	MC	1287	0.80	0.71	0.43
		1	49	MC	1287	0.80	0.85	0.42
		1	50	MC	1287	1.30	0.35	0.29
		1	51	MC	1287	1.00	0.57	0.38
		1	52	MC	1287	1.30	0.55	0.40
		1	53	MC	1287	2.60	0.64	0.49
		1	54	CR	747	1.20	1.58	0.60
		1	62	MC	1287	0.50	0.52	0.24
		1	63	MC	1287	1.00	0.49	0.40
		1	64	MC	1287	2.80	0.48	0.37
		1	65	MC	1287	1.40	0.59	0.33
		1	66	MC	1287	2.30	0.46	0.26
		1	67	MC	1287	0.60	0.58	0.37
		1	68	MC	1287	0.80	0.29	0.09
		2	8	MC	1296	0.50	0.47	0.46
		2	9	MC	1296	0.40	0.89	0.39
		2	10	MC	1296	0.50	0.44	0.27
		2	11	MC	1296	1.50	0.83	0.44
		2	12	MC	1296	1.40	0.55	0.21
		2	13	MC	1296	1.50	0.47	0.38
		2	14	MC	1296	2.90	0.64	0.31
		2	42	MC	1296	0.80	0.35	0.20
		2	43	MC	1296	1.00	0.26	0.27
		2	44	MC	1296	1.20	0.68	0.43
		2	45	MC	1296	1.40	0.47	0.35
		2	46	MC	1296	1.20	0.85	0.46
		2	47	MC	1296	1.70	0.61	0.34
		2	48	MC	1296	0.80	0.85	0.27
		2	49	MC	1296	0.90	0.73	0.37
		2	50	MC	1296	1.30	0.62	0.32
		2	51	MC	1296	1.40	0.36	0.28

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
3	Reading	2	52	MC	1296	1.30	0.77	0.42
		2	53	MC	1296	1.40	0.78	0.39
		2	54	CR	760	0.80	1.52	0.56
		2	62	MC	1296	1.20	0.55	0.32
		2	63	MC	1296	1.30	0.67	0.32
		2	64	MC	1296	2.10	0.62	0.27
		2	65	MC	1296	2.50	0.72	0.36
		2	66	MC	1296	2.50	0.74	0.36
		2	67	MC	1296	1.30	0.71	0.40
		2	68	MC	1296	1.50	0.58	0.41
		3	8	MC	1275	0.60	0.61	0.25
		3	9	MC	1275	0.50	0.94	0.32
		3	10	MC	1275	0.30	0.73	0.46
		3	11	MC	1275	1.30	0.49	0.24
		3	12	MC	1275	1.00	0.69	0.41
		3	13	MC	1275	2.00	0.57	0.23
		3	14	MC	1275	2.50	0.56	0.25
		3	42	MC	1275	0.70	0.56	0.26
		3	43	MC	1275	0.90	0.72	0.46
		3	44	MC	1275	0.90	0.56	0.37
		3	45	MC	1275	1.30	0.80	0.42
		3	46	MC	1275	1.00	0.36	0.17
		3	47	MC	1275	2.60	0.49	0.36
		3	48	MC	1275	0.70	0.51	0.28
		3	49	MC	1275	1.50	0.87	0.45
		3	50	MC	1275	1.90	0.34	0.31
		3	51	MC	1275	1.00	0.34	0.22
		3	52	MC	1275	1.30	0.63	0.55
		3	53	MC	1275	1.30	0.49	0.30
		3	54	CR	750	0.80	1.25	0.50
		3	62	MC	1275	0.50	0.52	0.19
		3	63	MC	1275	0.70	0.51	0.36
		3	64	MC	1275	1.50	0.66	0.19
		3	65	MC	1275	2.40	0.53	0.24
		3	66	MC	1275	3.30	0.26	0.09
		3	67	MC	1275	0.60	0.36	0.32
		3	68	MC	1275	1.30	0.53	0.23
		4	8	MC	1262	0.20	0.46	0.41
		4	9	MC	1262	0.00	0.58	0.38
		4	10	MC	1262	0.50	0.61	0.37
		4	11	MC	1262	0.80	0.41	0.25
		4	12	MC	1262	1.00	0.51	0.34
		4	13	MC	1262	1.10	0.59	0.31
		4	14	MC	1262	1.10	0.79	0.50
		4	42	MC	1262	0.30	0.78	0.42
		4	43	MC	1262	0.80	0.28	0.30
		4	44	MC	1262	0.80	0.67	0.38
		4	45	MC	1262	1.00	0.63	0.45
		4	46	MC	1262	1.30	0.51	0.30
		4	47	MC	1262	3.00	0.58	0.36

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
3	Reading	4	48	MC	1262	0.80	0.83	0.39
		4	49	MC	1262	1.30	0.78	0.45
		4	50	MC	1262	1.20	0.72	0.29
		4	51	MC	1262	1.30	0.25	0.02
		4	52	MC	1262	1.30	0.78	0.30
		4	53	MC	1262	1.30	0.81	0.44
		4	54	CR	748	0.30	1.52	0.39
		4	62	MC	1262	1.10	0.70	0.09
		4	63	MC	1262	1.30	0.89	0.37
		4	64	MC	1262	1.60	0.53	0.36
		4	65	MC	1262	2.10	0.73	0.42
		4	66	MC	1262	2.90	0.35	0.23
		4	67	MC	1262	1.20	0.73	0.51
		4	68	MC	1262	1.30	0.59	0.39
		5	8	MC	1265	0.20	0.82	0.35
		5	9	MC	1265	0.30	0.75	0.52
		5	10	MC	1265	0.30	0.52	0.50
		5	11	MC	1265	1.10	0.72	0.20
		5	12	MC	1265	1.00	0.56	0.25
		5	13	MC	1265	1.20	0.36	0.23
		5	14	MC	1265	2.50	0.40	0.24
		5	42	MC	1265	0.40	0.54	0.24
		5	43	MC	1265	0.40	0.71	0.51
		5	44	MC	1265	0.60	0.56	0.39
		5	45	MC	1265	1.20	0.58	0.33
		5	46	MC	1265	1.00	0.38	0.17
		5	47	MC	1265	2.30	0.58	0.31
		5	48	MC	1265	0.40	0.71	0.40
		5	49	MC	1265	0.60	0.84	0.39
		5	50	MC	1265	1.40	0.33	0.31
		5	51	MC	1265	0.60	0.58	0.34
		5	52	MC	1265	1.20	0.57	0.40
		5	53	MC	1265	2.40	0.56	0.35
		5	54	CR	749	0.70	1.58	0.58
		5	62	MC	1265	0.60	0.55	0.17
		5	63	MC	1265	0.80	0.48	0.35
		5	64	MC	1265	2.70	0.49	0.36
		5	65	MC	1265	2.70	0.59	0.39
		5	66	MC	1265	3.30	0.48	0.19
		5	67	MC	1265	0.90	0.61	0.34
		5	68	MC	1265	0.90	0.32	0.14
		6	8	MC	1285	0.70	0.51	0.41
		6	9	MC	1285	0.40	0.91	0.43
		6	10	MC	1285	0.70	0.48	0.27
		6	11	MC	1285	1.50	0.85	0.42
		6	12	MC	1285	1.10	0.56	0.23
		6	13	MC	1285	1.30	0.50	0.38
		6	14	MC	1285	3.20	0.64	0.29
		6	42	MC	1285	0.20	0.37	0.17
		6	43	MC	1285	0.40	0.29	0.27

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
3	Reading	6	44	MC	1285	0.40	0.68	0.40
		6	45	MC	1285	0.90	0.50	0.32
		6	46	MC	1285	0.50	0.88	0.47
		6	47	MC	1285	0.90	0.61	0.34
		6	48	MC	1285	0.50	0.85	0.31
		6	49	MC	1285	0.50	0.78	0.42
		6	50	MC	1285	0.70	0.62	0.19
		6	51	MC	1285	1.00	0.36	0.24
		6	52	MC	1285	0.80	0.81	0.41
		6	53	MC	1285	1.20	0.79	0.36
		6	54	CR	755	0.50	1.48	0.51
		6	62	MC	1285	0.40	0.59	0.30
		6	63	MC	1285	0.40	0.72	0.25
		6	64	MC	1285	1.00	0.61	0.20
		6	65	MC	1285	1.00	0.76	0.31
		6	66	MC	1285	1.60	0.78	0.36
		6	67	MC	1285	0.50	0.74	0.35
		6	68	MC	1285	0.60	0.62	0.39
		7	8	MC	1286	0.60	0.60	0.25
		7	9	MC	1286	0.20	0.94	0.29
		7	10	MC	1286	0.50	0.74	0.39
		7	11	MC	1286	0.90	0.48	0.28
		7	12	MC	1286	1.00	0.67	0.35
		7	13	MC	1286	1.30	0.54	0.19
		7	14	MC	1286	2.30	0.59	0.17
		7	42	MC	1286	0.70	0.54	0.19
		7	43	MC	1286	0.50	0.72	0.44
		7	44	MC	1286	0.90	0.57	0.35
		7	45	MC	1286	0.90	0.80	0.38
		7	46	MC	1286	0.70	0.38	0.15
		7	47	MC	1286	2.20	0.43	0.34
		7	48	MC	1286	0.50	0.49	0.23
		7	49	MC	1286	0.90	0.87	0.42
		7	50	MC	1286	2.30	0.33	0.29
		7	51	MC	1286	0.90	0.33	0.25
		7	52	MC	1286	0.80	0.51	0.28
		7	53	MC	1286	1.90	0.46	0.25
		7	54	CR	752	1.20	1.21	0.45
		7	62	MC	1286	0.90	0.54	0.18
		7	63	MC	1286	0.50	0.50	0.38
		7	64	MC	1286	1.20	0.65	0.22
		7	65	MC	1286	1.20	0.52	0.24
		7	66	MC	1286	2.90	0.23	0.14
		7	67	MC	1286	0.90	0.37	0.35
		7	68	MC	1286	1.40	0.53	0.18
		8	8	MC	1269	0.20	0.47	0.43
		8	9	MC	1269	0.50	0.61	0.34
		8	10	MC	1269	0.60	0.60	0.36
		8	11	MC	1269	1.00	0.42	0.20
		8	12	MC	1269	1.70	0.52	0.36

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
3	Reading	8	13	MC	1269	1.60	0.61	0.31
		8	14	MC	1269	3.10	0.80	0.46
		8	42	MC	1269	0.80	0.80	0.48
		8	43	MC	1269	0.50	0.31	0.32
		8	44	MC	1269	0.90	0.67	0.43
		8	45	MC	1269	1.80	0.67	0.50
		8	46	MC	1269	1.50	0.54	0.34
		8	47	MC	1269	2.00	0.62	0.37
		8	48	MC	1269	0.80	0.83	0.31
		8	49	MC	1269	0.80	0.80	0.45
		8	50	MC	1269	1.80	0.74	0.33
		8	51	MC	1269	0.60	0.28	0.08
		8	52	MC	1269	0.90	0.79	0.33
		8	53	MC	1269	1.50	0.81	0.41
		8	54	CR	753	0.80	1.50	0.42
		8	62	MC	1269	1.20	0.70	0.08
		8	63	MC	1269	1.20	0.89	0.43
		8	64	MC	1269	1.50	0.54	0.39
		8	65	MC	1269	1.70	0.73	0.44
		8	66	MC	1269	3.60	0.40	0.30
		8	67	MC	1269	1.40	0.74	0.51
		8	68	MC	1269	2.00	0.60	0.38

**Table C-3. 2008-09 MONTCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Mathematics Grade 4**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
4	Mathematics	0	1	MC	10439	0.10	0.83	0.28
		0	2	MC	10439	0.10	0.88	0.34
		0	3	MC	10439	0.20	0.77	0.27
		0	4	MC	10439	0.20	0.76	0.23
		0	5	MC	10439	0.20	0.72	0.41
		0	8	MC	10439	0.20	0.62	0.44
		0	9	MC	10439	0.30	0.68	0.45
		0	10	MC	10439	0.30	0.63	0.44
		0	11	MC	10439	0.20	0.30	0.33
		0	12	MC	10439	0.20	0.81	0.41
		0	13	MC	10439	0.20	0.63	0.29
		0	14	MC	10439	0.20	0.53	0.28
		0	15	MC	10439	0.20	0.71	0.20
		0	18	MC	10439	0.30	0.83	0.41
		0	19	MC	10439	0.40	0.54	0.45
		0	20	MC	10439	0.40	0.41	0.22
		0	21	MC	10439	0.40	0.57	0.32
		0	22	MC	10439	0.60	0.86	0.36
		0	23	SA	10439	0.60	0.61	0.44
		0	24	SA	10439	0.70	0.47	0.41
		0	25	CR	10439	1.90	1.86	0.59
		0	26	MC	10439	0.10	0.86	0.32
		0	27	MC	10439	0.10	0.76	0.37
		0	28	MC	10439	0.20	0.66	0.41
		0	29	MC	10439	0.20	0.64	0.31
		0	30	MC	10439	0.20	0.60	0.32
		0	31	MC	10439	0.10	0.72	0.31
		0	35	MC	10439	0.20	0.70	0.39
		0	36	MC	10439	0.10	0.71	0.45
		0	37	MC	10439	0.10	0.64	0.37
		0	38	MC	10439	0.20	0.52	0.31
		0	39	MC	10439	0.30	0.75	0.27
		0	40	MC	10439	0.20	0.65	0.38
		0	41	MC	10439	0.10	0.69	0.40
		0	42	MC	10439	0.10	0.84	0.33
		0	43	MC	10439	0.20	0.40	0.29
		0	44	MC	10439	0.20	0.72	0.55
		0	45	MC	10439	0.30	0.75	0.41
		0	46	MC	10439	0.40	0.28	0.26
		0	47	MC	10439	1.50	0.76	0.38
		0	48	SA	10439	1.30	0.43	0.46
		0	51	MC	10439	0.20	0.92	0.31
		0	52	MC	10439	0.20	0.76	0.47
		0	53	MC	10439	0.30	0.75	0.33
		0	54	MC	10439	0.40	0.49	0.30
		0	55	MC	10439	0.40	0.69	0.40
		0	56	MC	10439	0.30	0.57	0.39
		0	60	MC	10439	0.40	0.41	0.40

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Mathematics	0	61	MC	10439	0.30	0.68	0.28
		0	62	MC	10439	0.30	0.57	0.44
		0	63	MC	10439	0.40	0.67	0.47
		0	64	MC	10439	0.30	0.88	0.40
		0	65	MC	10439	0.30	0.47	0.35
		0	66	MC	10439	0.40	0.67	0.28
		0	67	MC	10439	0.30	0.71	0.38
		0	68	MC	10439	0.30	0.67	0.26
		0	69	MC	10439	0.40	0.69	0.44
		0	70	MC	10439	0.60	0.43	0.43
		0	71	MC	10439	1.20	0.93	0.24
		0	72	CR	10439	0.90	2.03	0.52
		1	6	MC	1332	0.10	0.80	0.39
		1	7	MC	1332	0.20	0.92	0.27
		1	16	MC	1332	0.40	0.46	0.40
		1	17	MC	1332	0.20	0.78	0.13
		1	32	MC	1332	0.20	0.69	0.49
		1	33	MC	1332	0.10	0.66	0.16
		1	34	MC	1332	0.20	0.69	0.24
		1	49	SA	1326	2.10	0.49	0.54
		1	50	CR	578	2.40	2.02	0.61
		1	57	MC	1332	0.40	0.84	0.43
		1	58	MC	1332	0.40	0.82	0.42
		1	59	MC	1332	0.30	0.55	0.49
		1	73	CR	747	3.90	2.24	0.56
		2	6	MC	1300	0.20	0.55	0.34
		2	7	MC	1300	0.00	0.86	0.31
		2	16	MC	1300	0.20	0.87	0.34
		2	17	MC	1300	0.30	0.53	0.25
		2	32	MC	1300	0.20	0.79	0.30
		2	33	MC	1300	0.40	0.63	0.35
		2	34	MC	1300	0.50	0.51	0.21
		2	49	SA	1296	0.70	0.69	0.38
		2	50	CR	562	0.90	2.12	0.56
		2	57	MC	1300	0.30	0.79	0.31
		2	58	MC	1300	0.20	0.44	0.35
		2	59	MC	1300	0.40	0.70	0.45
		2	73	CR	744	3.60	2.37	0.52
		3	6	MC	1298	0.20	0.59	0.45
		3	7	MC	1298	0.20	0.74	0.44
		3	16	MC	1298	0.20	0.93	0.27
		3	17	MC	1298	0.20	0.58	0.30
		3	32	MC	1298	0.10	0.74	0.50
		3	33	MC	1298	0.10	0.59	0.41
		3	34	MC	1298	0.00	0.77	0.31
		3	49	SA	1297	0.20	0.86	0.20
		3	50	CR	761	0.90	1.69	0.59
		3	57	MC	1298	0.20	0.77	0.26
		3	58	MC	1298	0.20	0.58	0.52
		3	59	MC	1298	0.20	0.83	0.39

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Mathematics	3	73	CR	752	2.70	1.81	0.60
		4	6	MC	1312	0.20	0.86	0.31
		4	7	MC	1312	0.20	0.59	0.27
		4	16	MC	1312	0.30	0.88	0.35
		4	17	MC	1312	0.50	0.45	0.32
		4	32	MC	1312	0.10	0.68	0.34
		4	33	MC	1312	0.10	0.83	0.36
		4	34	MC	1312	0.10	0.56	0.23
		4	49	SA	1289	0.50	0.76	0.38
		4	50	CR	750	2.30	1.66	0.59
		4	57	MC	1312	0.20	0.59	0.29
		4	58	MC	1312	0.20	0.64	0.36
		4	59	MC	1312	0.40	0.90	0.33
		4	73	CR	743	4.40	1.81	0.57
		5	6	MC	1306	0.10	0.36	0.40
		5	7	MC	1306	0.00	0.73	0.31
		5	16	MC	1306	0.00	0.86	0.38
		5	17	MC	1306	0.00	0.79	0.42
		5	32	MC	1306	0.10	0.59	0.36
		5	33	MC	1306	0.00	0.81	0.20
		5	34	MC	1306	0.10	0.82	0.30
		5	49	SA	1299	0.60	0.84	0.36
		5	50	CR	755	1.50	1.97	0.63
		5	57	MC	1306	0.20	0.83	0.28
		5	58	MC	1306	0.40	0.72	0.45
		5	59	MC	1306	0.30	0.36	0.25
		5	73	CR	755	4.50	1.90	0.62
		6	6	MC	1306	0.10	0.78	0.34
		6	7	MC	1306	0.40	0.62	0.47
		6	16	MC	1306	0.00	0.85	0.28
		6	17	MC	1306	0.20	0.88	0.36
		6	32	MC	1306	0.20	0.55	0.53
		6	33	MC	1306	0.50	0.13	0.11
		6	34	MC	1306	0.20	0.20	0.29
		6	49	SA	1300	0.90	0.40	0.52
		6	50	CR	756	2.50	2.01	0.63
		6	57	MC	1306	0.50	0.96	0.28
		6	58	MC	1306	0.50	0.81	0.37
		6	59	MC	1306	0.50	0.47	0.21
		6	73	CR	764	3.80	1.87	0.61
		7	6	MC	1300	0.30	0.64	0.41
		7	7	MC	1300	0.20	0.69	0.44
		7	16	MC	1300	0.30	0.32	0.09
		7	17	MC	1300	0.40	0.58	0.47
		7	32	MC	1300	0.20	0.86	0.38
		7	33	MC	1300	0.20	0.08	-0.01
		7	34	MC	1300	0.10	0.80	0.25
		7	49	SA	1296	0.50	0.89	0.45
		7	50	CR	751	1.30	2.94	0.48
		7	57	MC	1300	0.30	0.85	0.37

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Mathematics	7	58	MC	1300	0.30	0.94	0.31
		7	59	MC	1300	0.20	0.86	0.42
		7	73	CR	0			
		8	6	MC	1285	0.30	0.55	0.32
		8	7	MC	1285	0.30	0.47	0.25
		8	16	MC	1285	0.70	0.42	0.35
		8	17	MC	1285	0.60	0.41	0.31
		8	32	MC	1285	0.00	0.96	0.19
		8	33	MC	1285	0.20	0.32	0.14
		8	34	MC	1285	0.20	0.81	0.42
		8	49	SA	1282	0.80	0.90	0.31
		8	50	CR	750	1.30	2.92	0.51
		8	57	MC	1285	0.30	0.71	0.47
		8	58	MC	1285	0.40	0.48	0.17
		8	59	MC	1285	0.30	0.73	0.37
		8	73	CR	0			

**Table C-4. 2008-09 MONTCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Reading Grade 4**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
4	Reading	0	1	MC	10408	0.10	0.69	0.45
		0	2	MC	10408	0.10	0.86	0.37
		0	3	MC	10408	0.20	0.87	0.44
		0	4	MC	10408	0.20	0.83	0.39
		0	5	MC	10408	0.20	0.74	0.24
		0	6	MC	10408	0.20	0.90	0.41
		0	7	MC	10408	0.20	0.83	0.32
		0	15	MC	10408	0.30	0.68	0.30
		0	16	MC	10408	0.30	0.60	0.46
		0	17	MC	10408	0.40	0.68	0.33
		0	18	MC	10408	0.40	0.72	0.38
		0	19	MC	10408	0.30	0.65	0.40
		0	20	MC	10408	0.30	0.68	0.45
		0	21	MC	10408	0.40	0.58	0.37
		0	22	MC	10408	0.50	0.72	0.45
		0	23	MC	10408	0.40	0.81	0.38
		0	24	MC	10408	0.60	0.59	0.45
		0	25	MC	10408	0.40	0.76	0.52
		0	26	MC	10408	0.70	0.69	0.47
		0	27	CR	10408	0.80	1.65	0.33
		0	28	MC	10408	0.10	0.89	0.31
		0	29	MC	10408	0.10	0.87	0.30
		0	30	MC	10408	0.20	0.65	0.41
		0	31	MC	10408	0.20	0.90	0.31
		0	32	MC	10408	0.20	0.60	0.39
		0	33	MC	10408	0.20	0.78	0.37
		0	34	MC	10408	0.10	0.68	0.32
		0	35	MC	10408	0.10	0.70	0.45
		0	36	MC	10408	0.20	0.59	0.44
		0	37	MC	10408	0.20	0.51	0.35
		0	38	MC	10408	0.20	0.67	0.45
		0	39	MC	10408	0.20	0.66	0.35
		0	40	MC	10408	0.20	0.65	0.43
		0	41	MC	10408	0.20	0.56	0.39
		0	55	MC	10408	0.20	0.57	0.35
		0	56	MC	10408	0.10	0.63	0.37
		0	57	MC	10408	0.30	0.53	0.24
		0	58	MC	10408	0.30	0.44	0.25
		0	59	MC	10408	0.30	0.62	0.42
		0	60	MC	10408	0.30	0.67	0.40
		0	61	MC	10408	0.20	0.76	0.28
		0	69	MC	10408	0.30	0.59	0.40
		0	70	MC	10408	0.30	0.75	0.34
		0	71	MC	10408	0.40	0.66	0.36
		0	72	MC	10408	0.50	0.67	0.51
		0	73	MC	10408	0.30	0.56	0.32
		0	74	MC	10408	0.30	0.77	0.40
		0	75	MC	10408	0.40	0.57	0.40
		0	76	MC	10408	0.40	0.75	0.49

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Reading	0	77	MC	10408	0.50	0.61	0.36
		0	78	MC	10408	0.70	0.53	0.39
		0	79	MC	10408	0.40	0.46	0.22
		0	80	MC	10408	0.70	0.73	0.37
		0	81	CR	10408	0.70	1.74	0.43
		1	8	MC	1327	0.10	0.71	0.32
		1	9	MC	1327	0.20	0.69	0.34
		1	10	MC	1327	0.20	0.44	0.31
		1	11	MC	1327	0.20	0.61	0.35
		1	12	MC	1327	0.20	0.62	0.27
		1	13	MC	1327	0.20	0.60	0.18
		1	14	MC	1327	0.20	0.50	0.26
		1	42	MC	1327	0.30	0.78	0.33
		1	43	MC	1327	0.20	0.46	0.32
		1	44	MC	1327	0.50	0.72	0.44
		1	45	MC	1327	0.40	0.48	0.30
		1	46	MC	1327	0.20	0.31	0.11
		1	47	MC	1327	0.20	0.39	0.22
		1	48	MC	1327	0.20	0.78	0.43
		1	49	MC	1327	0.20	0.78	0.46
		1	50	MC	1327	0.30	0.38	0.14
		1	51	MC	1327	0.30	0.54	0.44
		1	52	MC	1327	0.20	0.47	0.28
		1	53	MC	1327	0.20	0.67	0.38
		1	54	CR	752	0.80	1.41	0.56
		1	62	MC	1327	0.10	0.62	0.34
		1	63	MC	1327	0.10	0.74	0.46
		1	64	MC	1327	0.20	0.86	0.27
		1	65	MC	1327	0.20	0.45	0.25
		1	66	MC	1327	0.20	0.58	0.43
		1	67	MC	1327	0.20	0.78	0.43
		1	68	MC	1327	0.40	0.46	0.32
		2	8	MC	1295	0.10	0.73	0.40
		2	9	MC	1295	0.20	0.70	0.35
		2	10	MC	1295	0.20	0.48	0.20
		2	11	MC	1295	0.30	0.81	0.44
		2	12	MC	1295	0.30	0.59	0.18
		2	13	MC	1295	0.20	0.64	0.44
		2	14	MC	1295	0.20	0.63	0.28
		2	42	MC	1295	0.10	0.78	0.32
		2	43	MC	1295	0.20	0.85	0.40
		2	44	MC	1295	0.30	0.48	0.30
		2	45	MC	1295	0.20	0.76	0.43
		2	46	MC	1295	0.20	0.47	0.25
		2	47	MC	1295	0.20	0.49	0.04
		2	48	MC	1295	0.30	0.53	0.26
		2	49	MC	1295	0.20	0.46	0.29
		2	50	MC	1295	0.60	0.81	0.47
		2	51	MC	1295	0.90	0.61	0.40
		2	52	MC	1295	0.20	0.77	0.30
		2	53	MC	1295	0.30	0.66	0.36

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Reading	2	54	CR	751	0.40	1.59	0.30
		2	62	MC	1295	0.20	0.62	0.35
		2	63	MC	1295	0.00	0.76	0.46
		2	64	MC	1295	0.10	0.50	0.23
		2	65	MC	1295	0.10	0.74	0.36
		2	66	MC	1295	0.20	0.66	0.49
		2	67	MC	1295	0.10	0.81	0.51
		2	68	MC	1295	0.20	0.40	0.26
		3	8	MC	1293	0.30	0.66	0.34
		3	9	MC	1293	0.30	0.79	0.40
		3	10	MC	1293	0.30	0.89	0.33
		3	11	MC	1293	0.50	0.46	0.23
		3	12	MC	1293	0.20	0.64	0.42
		3	13	MC	1293	0.20	0.44	0.41
		3	14	MC	1293	0.40	0.53	0.36
		3	42	MC	1293	0.20	0.79	0.28
		3	43	MC	1293	0.30	0.86	0.40
		3	44	MC	1293	0.50	0.69	0.36
		3	45	MC	1293	0.20	0.76	0.46
		3	46	MC	1293	0.20	0.51	0.33
		3	47	MC	1293	0.40	0.30	0.08
		3	48	MC	1293	0.30	0.40	0.24
		3	49	MC	1293	0.40	0.77	0.43
		3	50	MC	1293	0.40	0.80	0.46
		3	51	MC	1293	0.70	0.39	0.19
		3	52	MC	1293	0.40	0.51	0.28
		3	53	MC	1293	0.50	0.65	0.37
		3	54	CR	757	0.50	1.49	0.63
		3	62	MC	1293	0.30	0.76	0.33
		3	63	MC	1293	0.30	0.71	0.44
		3	64	MC	1293	0.50	0.45	0.31
		3	65	MC	1293	0.50	0.64	0.38
		3	66	MC	1293	0.20	0.62	0.31
		3	67	MC	1293	0.30	0.52	0.11
		3	68	MC	1293	0.50	0.52	0.21
		4	8	MC	1308	0.10	0.67	0.32
		4	9	MC	1308	0.30	0.79	0.42
		4	10	MC	1308	0.10	0.51	0.26
		4	11	MC	1308	0.10	0.78	0.25
		4	12	MC	1308	0.20	0.73	0.44
		4	13	MC	1308	0.20	0.88	0.37
		4	14	MC	1308	0.20	0.45	0.25
		4	42	MC	1308	0.20	0.80	0.24
		4	43	MC	1308	0.40	0.87	0.35
		4	44	MC	1308	0.20	0.49	0.28
		4	45	MC	1308	0.10	0.75	0.41
		4	46	MC	1308	0.20	0.50	0.29
		4	47	MC	1308	0.20	0.55	0.22
		4	48	MC	1308	0.40	0.44	0.24
		4	49	MC	1308	0.40	0.61	0.21
		4	50	MC	1308	0.30	0.82	0.40

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Reading	4	51	MC	1308	0.40	0.65	0.41
		4	52	MC	1308	0.30	0.78	0.32
		4	53	MC	1308	0.40	0.66	0.41
		4	54	CR	588	0.30	1.49	0.39
		4	62	MC	1308	0.20	0.70	0.39
		4	63	MC	1308	0.30	0.70	0.39
		4	64	MC	1308	0.50	0.47	0.22
		4	65	MC	1308	0.30	0.79	0.44
		4	66	MC	1308	0.40	0.60	0.16
		4	67	MC	1308	0.20	0.65	0.44
		4	68	MC	1308	0.20	0.63	0.27
		5	8	MC	1301	0.30	0.46	0.33
		5	9	MC	1301	0.20	0.73	0.37
		5	10	MC	1301	0.20	0.86	0.34
		5	11	MC	1301	0.30	0.54	0.38
		5	12	MC	1301	0.40	0.48	0.41
		5	13	MC	1301	0.50	0.91	0.40
		5	14	MC	1301	0.50	0.38	0.19
		5	42	MC	1301	0.30	0.23	-0.04
		5	43	MC	1301	0.30	0.72	0.43
		5	44	MC	1301	0.20	0.71	0.43
		5	45	MC	1301	0.40	0.63	0.21
		5	46	MC	1301	0.30	0.67	0.47
		5	47	MC	1301	0.20	0.51	0.34
		5	48	MC	1301	0.40	0.75	0.36
		5	49	MC	1301	0.50	0.83	0.37
		5	50	MC	1301	0.40	0.72	0.42
		5	51	MC	1301	0.60	0.77	0.23
		5	52	MC	1301	0.70	0.84	0.44
		5	53	MC	1301	0.90	0.72	0.44
		5	54	CR	752	0.80	1.76	0.37
		5	62	MC	1301	0.20	0.59	0.40
		5	63	MC	1301	0.40	0.89	0.36
		5	64	MC	1301	0.40	0.21	0.10
		5	65	MC	1301	0.20	0.75	0.39
		5	66	MC	1301	0.30	0.78	0.43
		5	67	MC	1301	0.30	0.32	0.25
		5	68	MC	1301	0.40	0.69	0.30
6	Reading	6	8	MC	1302	0.00	0.61	0.36
		6	9	MC	1302	0.10	0.72	0.48
		6	10	MC	1302	0.20	0.81	0.36
		6	11	MC	1302	0.30	0.61	0.34
		6	12	MC	1302	0.40	0.74	0.43
		6	13	MC	1302	0.10	0.28	0.14
		6	14	MC	1302	0.20	0.28	0.19
		6	42	MC	1302	0.20	0.45	0.10
		6	43	MC	1302	0.20	0.55	0.24
		6	44	MC	1302	0.10	0.81	0.42
		6	45	MC	1302	0.30	0.83	0.38
		6	46	MC	1302	0.10	0.51	0.10
		6	47	MC	1302	0.20	0.86	0.43

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Reading	6	48	MC	1302	0.10	0.76	0.46
		6	49	MC	1302	0.20	0.79	0.46
		6	50	MC	1302	0.50	0.63	0.37
		6	51	MC	1302	0.60	0.76	0.36
		6	52	MC	1302	0.50	0.43	0.37
		6	53	MC	1302	0.80	0.71	0.48
		6	54	CR	748	0.40	1.72	0.47
		6	62	MC	1302	0.30	0.57	0.37
		6	63	MC	1302	0.40	0.70	0.37
		6	64	MC	1302	0.50	0.22	0.14
		6	65	MC	1302	0.40	0.76	0.40
		6	66	MC	1302	0.50	0.36	0.21
		6	67	MC	1302	0.20	0.70	0.30
		6	68	MC	1302	0.20	0.65	0.29
		7	8	MC	1296	0.20	0.59	0.40
		7	9	MC	1296	0.20	0.90	0.31
		7	10	MC	1296	0.10	0.17	0.03
		7	11	MC	1296	0.20	0.75	0.39
		7	12	MC	1296	0.20	0.80	0.39
		7	13	MC	1296	0.20	0.34	0.20
		7	14	MC	1296	0.30	0.70	0.31
		7	42	MC	1296	0.10	0.24	-0.04
		7	43	MC	1296	0.20	0.72	0.45
		7	44	MC	1296	0.20	0.72	0.45
		7	45	MC	1296	0.20	0.62	0.22
		7	46	MC	1296	0.20	0.67	0.48
		7	47	MC	1296	0.10	0.52	0.28
		7	48	MC	1296	0.20	0.77	0.38
		7	49	MC	1296	0.20	0.83	0.43
		7	50	MC	1296	0.10	0.73	0.45
		7	51	MC	1296	0.10	0.75	0.24
		7	52	MC	1296	0.30	0.86	0.39
		7	53	MC	1296	0.70	0.75	0.40
		7	54	CR	755	0.80	1.65	0.39
		7	62	MC	1296	0.30	0.49	0.36
		7	63	MC	1296	0.20	0.74	0.38
		7	64	MC	1296	0.20	0.76	0.39
		7	65	MC	1296	0.20	0.56	0.38
		7	66	MC	1296	0.30	0.40	0.31
		7	67	MC	1296	0.20	0.87	0.43
		7	68	MC	1296	0.30	0.37	0.09
		8	8	MC	1286	0.20	0.55	0.25
		8	9	MC	1286	0.20	0.71	0.37
		8	10	MC	1286	0.20	0.20	0.03
		8	11	MC	1286	0.20	0.78	0.48
		8	12	MC	1286	0.20	0.33	0.16
		8	13	MC	1286	0.20	0.69	0.31
		8	14	MC	1286	0.10	0.73	0.36
		8	42	MC	1286	0.20	0.47	0.09
		8	43	MC	1286	0.20	0.58	0.28
		8	44	MC	1286	0.20	0.80	0.43

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Reading	8	45	MC	1286	0.30	0.83	0.33
		8	46	MC	1286	0.10	0.53	0.16
		8	47	MC	1286	0.10	0.86	0.40
		8	48	MC	1286	0.20	0.74	0.48
		8	49	MC	1286	0.10	0.78	0.49
		8	50	MC	1286	0.20	0.61	0.42
		8	51	MC	1286	0.30	0.76	0.35
		8	52	MC	1286	0.20	0.45	0.33
		8	53	MC	1286	0.20	0.73	0.48
		8	54	CR	755	0.70	1.69	0.41
		8	62	MC	1286	0.30	0.63	0.35
		8	63	MC	1286	0.20	0.74	0.53
		8	64	MC	1286	0.50	0.64	0.36
		8	65	MC	1286	0.20	0.70	0.34
		8	66	MC	1286	0.20	0.69	0.41
		8	67	MC	1286	0.30	0.26	0.16
		8	68	MC	1286	0.20	0.30	0.22

Table C-5. 2008-09 MONTCAS: Item Level Classical Stats by Grade, Content Area and Form—Science Grade 4

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Science	0	1	MC	10449	0.10	0.51	0.11
		0	2	MC	10449	0.10	0.70	0.26
		0	3	MC	10449	0.10	0.89	0.31
		0	4	MC	10449	0.20	0.82	0.40
		0	5	MC	10449	0.10	0.88	0.32
		0	8	MC	10449	0.10	0.66	0.43
		0	9	MC	10449	0.20	0.76	0.37
		0	10	MC	10449	0.20	0.94	0.29
		0	11	MC	10449	0.20	0.67	0.26
		0	15	MC	10449	0.20	0.55	0.33
		0	16	MC	10449	0.10	0.77	0.25
		0	17	MC	10449	0.20	0.68	0.36
		0	18	MC	10449	0.20	0.61	0.33
		0	19	MC	10449	0.10	0.73	0.35
		0	23	MC	10449	0.30	0.53	0.32
		0	24	MC	10449	0.50	0.57	0.21
		0	25	MC	10449	0.30	0.63	0.30
		0	26	MC	10449	0.70	0.85	0.15
		0	27	CR	10449	0.50	2.49	0.40
		0	28	MC	10449	0.30	0.71	0.32
		0	29	MC	10449	0.30	0.70	0.34
		0	30	MC	10449	0.40	0.75	0.11
		0	31	MC	10449	0.40	0.80	0.34
		0	35	MC	10449	0.30	0.66	0.37
		0	36	MC	10449	0.30	0.69	0.36
		0	37	MC	10449	0.40	0.53	0.21
		0	38	MC	10449	0.40	0.74	0.23
		0	42	MC	10449	0.40	0.65	0.30
		0	43	MC	10449	0.40	0.68	0.31
		0	44	MC	10449	0.30	0.82	0.18
		0	45	MC	10449	0.40	0.69	0.45
		0	46	MC	10449	0.40	0.62	0.24
		0	50	MC	10449	0.40	0.87	0.26
		0	51	MC	10449	0.50	0.65	0.31
		0	52	MC	10449	0.40	0.54	0.32
		0	53	MC	10449	0.60	0.75	0.23
		0	55	MC	10449	0.20	0.64	0.38
		0	56	MC	10449	0.20	0.85	0.27
		0	57	MC	10449	0.20	0.78	0.38
		0	58	MC	10449	0.20	0.74	0.32
		0	59	MC	10449	0.30	0.55	0.33
		0	62	MC	10449	0.30	0.39	0.26
		0	63	MC	10449	0.40	0.80	0.27
		0	64	MC	10449	0.30	0.55	0.13
		0	65	MC	10449	0.20	0.79	0.29
		0	69	MC	10449	0.30	0.83	0.15
		0	70	MC	10449	0.30	0.55	0.32
		0	71	MC	10449	0.20	0.91	0.31
		0	72	MC	10449	0.30	0.72	0.36

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Science	0	73	MC	10449	0.20	0.61	0.25
		0	77	MC	10449	0.30	0.77	0.35
		0	78	MC	10449	0.30	0.64	0.37
		0	79	MC	10449	0.20	0.63	0.29
		0	80	MC	10449	0.50	0.66	0.30
		0	81	CR	10449	0.70	0.92	0.29
		1	6	MC	1330	0.20	0.70	0.30
		1	7	MC	1330	0.10	0.06	-0.18
		1	12	MC	1330	0.20	0.48	0.18
		1	13	MC	1330	0.20	0.64	0.44
		1	14	MC	1330	0.30	0.80	0.35
		1	20	MC	1330	0.20	0.77	0.40
		1	21	MC	1330	0.30	0.58	0.29
		1	22	MC	1330	0.40	0.45	0.24
		1	32	MC	1330	0.20	0.33	0.21
		1	33	MC	1330	0.20	0.57	0.15
		1	34	MC	1330	0.30	0.90	0.28
		1	39	MC	1330	0.70	0.67	0.19
		1	40	MC	1330	0.50	0.57	0.25
		1	41	MC	1330	0.50	0.46	0.21
		1	47	MC	1330	0.40	0.87	0.30
		1	48	MC	1330	0.70	0.73	0.44
		1	49	MC	1330	0.50	0.53	0.40
		1	54	CR	760	1.10	1.22	0.49
		1	60	MC	1330	0.30	0.64	0.40
		1	61	MC	1330	0.20	0.69	0.36
		1	66	MC	1330	0.40	0.70	0.32
		1	67	MC	1330	0.20	0.60	0.19
		1	68	MC	1330	0.20	0.61	0.39
		1	74	MC	1330	0.20	0.83	0.25
		1	75	MC	1330	0.30	0.49	0.21
		1	76	MC	1330	0.20	0.76	0.36
		2	6	MC	1303	0.20	0.53	0.36
		2	7	MC	1303	0.00	0.94	0.22
		2	12	MC	1303	0.10	0.70	0.27
		2	13	MC	1303	0.10	0.60	0.24
		2	14	MC	1303	0.10	0.40	0.26
		2	20	MC	1303	0.00	0.45	0.29
		2	21	MC	1303	0.20	0.73	0.21
		2	22	MC	1303	0.40	0.43	0.26
		2	32	MC	1303	0.60	0.80	0.34
		2	33	MC	1303	0.40	0.72	0.28
		2	34	MC	1303	0.20	0.67	0.23
		2	39	MC	1303	0.70	0.49	0.31
		2	40	MC	1303	0.20	0.85	0.39
		2	41	MC	1303	0.30	0.71	0.37
		2	47	MC	1303	0.30	0.56	0.30
		2	48	MC	1303	0.30	0.76	0.45
		2	49	MC	1303	0.40	0.53	0.41
		2	54	CR	758	0.70	1.39	0.39

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Science	2	60	MC	1303	0.20	0.37	0.24
		2	61	MC	1303	0.20	0.71	0.38
		2	66	MC	1303	0.20	0.90	0.12
		2	67	MC	1303	0.20	0.61	0.29
		2	68	MC	1303	0.30	0.55	0.41
		2	74	MC	1303	0.10	0.38	0.27
		2	75	MC	1303	0.30	0.61	0.31
		2	76	MC	1303	0.10	0.69	0.48
		3	6	MC	1299	0.10	0.66	0.42
		3	7	MC	1299	0.10	0.77	0.27
		3	12	MC	1299	0.20	0.50	0.27
		3	13	MC	1299	0.20	0.58	0.34
		3	14	MC	1299	0.30	0.55	0.24
		3	20	MC	1299	0.20	0.70	0.23
		3	21	MC	1299	0.40	0.58	0.29
		3	22	MC	1299	0.30	0.52	0.38
		3	32	MC	1299	0.80	0.79	0.39
		3	33	MC	1299	0.50	0.89	0.34
		3	34	MC	1299	0.30	0.59	0.39
		3	39	MC	1299	0.40	0.85	0.32
		3	40	MC	1299	0.40	0.79	0.48
		3	41	MC	1299	0.30	0.34	-0.06
		3	47	MC	1299	0.50	0.68	0.34
		3	48	MC	1299	0.50	0.42	0.18
		3	49	MC	1299	0.40	0.70	0.43
		3	54	CR	747	1.20	1.26	0.37
		3	60	MC	1299	0.50	0.65	0.35
		3	61	MC	1299	0.30	0.57	0.36
		3	66	MC	1299	0.30	0.94	0.29
		3	67	MC	1299	0.20	0.58	0.27
		3	68	MC	1299	0.40	0.85	0.27
		3	74	MC	1299	0.30	0.73	0.11
		3	75	MC	1299	0.40	0.56	0.33
		3	76	MC	1299	0.50	0.43	0.16
		4	6	MC	1313	0.10	0.49	0.24
		4	7	MC	1313	0.10	0.31	0.11
		4	12	MC	1313	0.20	0.14	0.02
		4	13	MC	1313	0.20	0.62	0.28
		4	14	MC	1313	0.10	0.71	0.25
		4	20	MC	1313	0.20	0.47	0.37
		4	21	MC	1313	0.10	0.82	0.25
		4	22	MC	1313	0.20	0.83	0.37
		4	32	MC	1313	0.40	0.76	0.38
		4	33	MC	1313	0.50	0.56	0.33
		4	34	MC	1313	0.20	0.35	0.01
		4	39	MC	1313	0.30	0.77	0.23
		4	40	MC	1313	0.30	0.65	0.36
		4	41	MC	1313	0.20	0.73	0.20
		4	47	MC	1313	0.20	0.79	0.25
		4	48	MC	1313	0.30	0.83	0.29

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Science	4	49	MC	1313	0.60	0.55	0.27
		4	54	CR	748	0.50	2.56	0.35
		4	60	MC	1313	0.20	0.72	0.33
		4	61	MC	1313	0.20	0.68	0.02
		4	66	MC	1313	0.30	0.49	0.21
		4	67	MC	1313	0.30	0.11	-0.03
		4	68	MC	1313	0.20	0.57	0.25
		4	74	MC	1313	0.50	0.90	0.33
		4	75	MC	1313	0.30	0.55	0.12
		4	76	MC	1313	0.30	0.71	0.13
		5	6	MC	1306	0.10	0.70	0.25
		5	7	MC	1306	0.20	0.07	-0.08
		5	12	MC	1306	0.30	0.46	0.19
		5	13	MC	1306	0.10	0.68	0.40
		5	14	MC	1306	0.10	0.83	0.30
		5	20	MC	1306	0.20	0.80	0.40
		5	21	MC	1306	0.50	0.60	0.30
		5	22	MC	1306	0.30	0.44	0.23
		5	32	MC	1306	0.50	0.30	0.22
		5	33	MC	1306	0.30	0.55	0.12
		5	34	MC	1306	0.10	0.88	0.30
		5	39	MC	1306	0.30	0.70	0.20
		5	40	MC	1306	0.20	0.57	0.26
		5	41	MC	1306	0.20	0.49	0.28
		5	47	MC	1306	0.20	0.86	0.26
		5	48	MC	1306	0.30	0.77	0.40
		5	49	MC	1306	0.70	0.55	0.38
		5	54	CR	754	0.90	1.27	0.49
		5	60	MC	1306	0.20	0.65	0.34
		5	61	MC	1306	0.20	0.68	0.33
		5	66	MC	1306	0.10	0.72	0.33
		5	67	MC	1306	0.10	0.62	0.12
		5	68	MC	1306	0.10	0.61	0.41
		5	74	MC	1306	0.20	0.85	0.27
		5	75	MC	1306	0.30	0.50	0.21
		5	76	MC	1306	0.10	0.78	0.31
		6	6	MC	1306	0.40	0.57	0.35
		6	7	MC	1306	0.20	0.94	0.24
		6	12	MC	1306	0.30	0.70	0.20
		6	13	MC	1306	0.20	0.62	0.23
		6	14	MC	1306	0.30	0.38	0.17
		6	20	MC	1306	0.20	0.46	0.23
		6	21	MC	1306	0.20	0.73	0.14
		6	22	MC	1306	0.20	0.44	0.21
		6	32	MC	1306	0.70	0.83	0.32
		6	33	MC	1306	0.50	0.76	0.32
		6	34	MC	1306	0.20	0.68	0.29
		6	39	MC	1306	0.40	0.48	0.30
		6	40	MC	1306	0.40	0.85	0.42
		6	41	MC	1306	0.20	0.71	0.36

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Science	6	47	MC	1306	0.50	0.58	0.29
		6	48	MC	1306	0.30	0.77	0.47
		6	49	MC	1306	0.80	0.53	0.37
		6	54	CR	752	1.20	1.42	0.39
		6	60	MC	1306	0.30	0.40	0.24
		6	61	MC	1306	0.30	0.70	0.41
		6	66	MC	1306	0.50	0.88	0.14
		6	67	MC	1306	0.40	0.61	0.30
		6	68	MC	1306	0.50	0.53	0.39
		6	74	MC	1306	0.60	0.37	0.30
		6	75	MC	1306	0.30	0.60	0.32
		6	76	MC	1306	0.30	0.72	0.43
		7	6	MC	1304	0.00	0.64	0.42
		7	7	MC	1304	0.00	0.76	0.26
		7	12	MC	1304	0.20	0.51	0.28
		7	13	MC	1304	0.00	0.58	0.34
		7	14	MC	1304	0.10	0.56	0.22
		7	20	MC	1304	0.20	0.70	0.21
		7	21	MC	1304	0.10	0.56	0.38
		7	22	MC	1304	0.10	0.55	0.35
		7	32	MC	1304	0.30	0.77	0.41
		7	33	MC	1304	0.20	0.88	0.34
		7	34	MC	1304	0.20	0.61	0.42
		7	39	MC	1304	0.50	0.85	0.31
		7	40	MC	1304	0.20	0.78	0.46
		7	41	MC	1304	0.20	0.35	0.00
		7	47	MC	1304	0.20	0.68	0.28
		7	48	MC	1304	0.50	0.41	0.14
		7	49	MC	1304	0.20	0.70	0.46
		7	54	CR	752	1.10	1.26	0.40
		7	60	MC	1304	0.20	0.67	0.34
		7	61	MC	1304	0.10	0.60	0.41
		7	66	MC	1304	0.10	0.93	0.42
		7	67	MC	1304	0.20	0.58	0.22
		7	68	MC	1304	0.20	0.86	0.21
		7	74	MC	1304	0.20	0.71	0.16
		7	75	MC	1304	0.20	0.57	0.34
		7	76	MC	1304	0.30	0.44	0.11
		8	6	MC	1288	0.00	0.50	0.31
		8	7	MC	1288	0.10	0.31	0.20
		8	12	MC	1288	0.10	0.15	0.02
		8	13	MC	1288	0.10	0.62	0.33
		8	14	MC	1288	0.10	0.73	0.24
		8	20	MC	1288	0.10	0.50	0.33
		8	21	MC	1288	0.20	0.82	0.31
		8	22	MC	1288	0.40	0.83	0.41
		8	32	MC	1288	0.40	0.75	0.40
		8	33	MC	1288	0.30	0.54	0.33
		8	34	MC	1288	0.30	0.37	0.07
		8	39	MC	1288	0.50	0.79	0.26

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Science	8	40	MC	1288	0.50	0.65	0.31
		8	41	MC	1288	0.50	0.72	0.24
		8	47	MC	1288	0.80	0.78	0.30
		8	48	MC	1288	0.60	0.84	0.26
		8	49	MC	1288	1.00	0.55	0.29
		8	54	CR	758	0.80	2.51	0.52
		8	60	MC	1288	0.50	0.73	0.32
		8	61	MC	1288	0.40	0.69	0.08
		8	66	MC	1288	0.40	0.51	0.20
		8	67	MC	1288	0.20	0.11	-0.04
		8	68	MC	1288	0.30	0.55	0.30
		8	74	MC	1288	0.30	0.90	0.35
		8	75	MC	1288	0.20	0.60	0.12
		8	76	MC	1288	0.20	0.70	0.11

**Table C-6. 2008-09 MONTCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Mathematics Grade 5**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
5	Mathematics	0	1	MC	10349	0.20	0.78	0.39
		0	2	MC	10349	0.20	0.74	0.24
		0	3	MC	10349	0.20	0.59	0.41
		0	4	MC	10349	0.20	0.57	0.47
		0	5	MC	10349	0.20	0.28	0.32
		0	8	MC	10349	0.10	0.94	0.21
		0	9	MC	10349	0.10	0.46	0.24
		0	10	MC	10349	0.10	0.61	0.46
		0	11	MC	10349	0.10	0.62	0.44
		0	12	MC	10349	0.20	0.78	0.47
		0	13	MC	10349	0.20	0.53	0.43
		0	14	MC	10349	0.20	0.46	0.26
		0	15	MC	10349	0.20	0.44	0.34
		0	18	MC	10349	0.20	0.65	0.44
		0	19	MC	10349	0.20	0.64	0.27
		0	20	MC	10349	0.40	0.38	0.32
		0	21	MC	10349	0.20	0.57	0.34
		0	22	MC	10349	0.60	0.83	0.36
		0	23	SA	10349	0.40	0.66	0.45
		0	24	SA	10349	0.80	0.68	0.44
		0	25	CR	10349	1.90	2.18	0.58
		0	26	MC	10349	0.10	0.89	0.24
		0	27	MC	10349	0.20	0.78	0.23
		0	28	MC	10349	0.20	0.55	0.24
		0	29	MC	10349	0.20	0.69	0.37
		0	30	MC	10349	0.20	0.56	0.43
		0	31	MC	10349	0.20	0.53	0.52
		0	35	MC	10349	0.20	0.38	0.29
		0	36	MC	10349	0.10	0.78	0.40
		0	37	MC	10349	0.20	0.80	0.42
		0	38	MC	10349	0.20	0.61	0.32
		0	39	MC	10349	0.20	0.91	0.28
		0	40	MC	10349	0.20	0.45	0.41
		0	41	MC	10349	0.20	0.72	0.40
		0	42	MC	10349	0.20	0.65	0.51
		0	43	MC	10349	0.30	0.54	0.35
		0	44	MC	10349	0.30	0.89	0.34
		0	45	MC	10349	0.30	0.47	0.36
		0	46	MC	10349	0.40	0.54	0.28
		0	47	MC	10349	1.50	0.53	0.40
		0	48	SA	10349	0.60	0.49	0.34
		0	51	MC	10349	0.20	0.74	0.41
		0	52	MC	10349	0.20	0.73	0.20
		0	53	MC	10349	0.30	0.55	0.41
		0	54	MC	10349	0.30	0.55	0.51
		0	55	MC	10349	0.30	0.60	0.24
		0	56	MC	10349	0.30	0.69	0.45
		0	60	MC	10349	0.30	0.60	0.41
		0	61	MC	10349	0.30	0.48	0.27

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
5	Mathematics	0	62	MC	10349	0.20	0.67	0.43
		0	63	MC	10349	0.30	0.73	0.37
		0	64	MC	10349	0.40	0.44	0.46
		0	65	MC	10349	0.30	0.73	0.40
		0	66	MC	10349	0.30	0.58	0.46
		0	67	MC	10349	0.30	0.53	0.36
		0	68	MC	10349	0.30	0.51	0.34
		0	69	MC	10349	0.30	0.65	0.39
		0	70	MC	10349	0.50	0.36	0.39
		0	71	MC	10349	0.70	0.38	0.49
		0	72	CR	10349	0.80	1.89	0.65
		1	6	MC	1317	0.10	0.79	0.33
		1	7	MC	1317	0.20	0.66	0.49
		1	16	MC	1317	0.20	0.71	0.30
		1	17	MC	1317	0.20	0.53	0.10
		1	32	MC	1317	0.30	0.65	0.26
		1	33	MC	1317	0.10	0.73	0.46
		1	34	MC	1317	0.10	0.78	0.47
		1	49	SA	1316	0.30	0.83	0.34
		1	50	CR	754	1.50	1.55	0.60
		1	57	MC	1317	0.30	0.63	0.41
		1	58	MC	1317	0.40	0.74	0.44
		1	59	MC	1317	0.20	0.16	0.19
		1	73	CR	753	2.00	1.77	0.58
		2	6	MC	1279	0.20	0.74	0.34
		2	7	MC	1279	0.10	0.75	0.25
		2	16	MC	1279	0.10	0.82	0.19
		2	17	MC	1279	0.20	0.57	0.52
		2	32	MC	1279	0.20	0.44	0.55
		2	33	MC	1279	0.20	0.82	0.35
		2	34	MC	1279	0.20	0.67	0.48
		2	49	SA	1277	0.60	0.67	0.45
		2	50	CR	751	1.50	2.11	0.51
		2	57	MC	1279	0.30	0.45	0.42
		2	58	MC	1279	0.30	0.32	0.28
		2	59	MC	1279	0.50	0.42	0.57
		2	73	CR	749	2.00	1.44	0.61
		3	6	MC	1312	0.20	0.51	0.55
		3	7	MC	1312	0.10	0.56	0.43
		3	16	MC	1312	0.30	0.56	0.40
		3	17	MC	1312	0.00	0.43	0.40
		3	32	MC	1312	0.20	0.67	0.33
		3	33	MC	1312	0.20	0.75	0.39
		3	34	MC	1312	0.20	0.89	0.29
		3	49	SA	1308	1.10	0.55	0.54
		3	50	CR	755	1.60	2.13	0.56
		3	57	MC	1312	0.20	0.76	0.44
		3	58	MC	1312	0.30	0.38	0.31
		3	59	MC	1312	0.50	0.78	0.44
		3	73	CR	740	2.40	1.71	0.66

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
5	Mathematics	4	6	MC	1284	0.20	0.69	0.24
		4	7	MC	1284	0.30	0.66	0.38
		4	16	MC	1284	0.30	0.60	0.31
		4	17	MC	1284	0.40	0.70	0.22
		4	32	MC	1284	0.20	0.44	0.53
		4	33	MC	1284	0.30	0.61	0.47
		4	34	MC	1284	0.30	0.74	0.30
		4	49	SA	1283	0.60	0.46	0.38
		4	50	CR	746	1.70	0.83	0.59
		4	57	MC	1284	0.20	0.81	0.44
		4	58	MC	1284	0.20	0.69	0.33
		4	59	MC	1284	0.10	0.54	0.36
		4	73	CR	755	1.70	1.25	0.48
		5	6	MC	1311	0.20	0.61	0.51
		5	7	MC	1311	0.20	0.31	0.29
		5	16	MC	1311	0.10	0.54	0.43
		5	17	MC	1311	0.30	0.63	0.47
		5	32	MC	1311	0.20	0.40	0.41
		5	33	MC	1311	0.20	0.79	0.37
		5	34	MC	1311	0.20	0.88	0.28
		5	49	SA	1307	0.50	0.54	0.38
		5	50	CR	752	1.70	1.49	0.64
		5	57	MC	1311	0.20	0.58	0.42
		5	58	MC	1311	0.20	0.21	0.24
		5	59	MC	1311	0.40	0.45	0.17
		5	73	CR	755	1.60	1.20	0.40
		6	6	MC	1265	0.00	0.66	0.38
		6	7	MC	1265	0.20	0.30	0.15
		6	16	MC	1265	0.20	0.37	0.28
		6	17	MC	1265	0.20	0.82	0.23
		6	32	MC	1265	0.20	0.56	0.40
		6	33	MC	1265	0.20	0.63	0.38
		6	34	MC	1265	0.20	0.55	0.56
		6	49	SA	1264	0.50	0.47	0.47
		6	50	CR	748	2.00	2.14	0.54
		6	57	MC	1265	0.20	0.73	0.26
		6	58	MC	1265	0.20	0.65	0.43
		6	59	MC	1265	0.10	0.61	0.31
		6	73	CR	743	2.40	1.44	0.57
		7	6	MC	1304	0.20	0.64	0.20
		7	7	MC	1304	0.20	0.34	0.48
		7	16	MC	1304	0.20	0.57	0.31
		7	17	MC	1304	0.20	0.77	0.20
		7	32	MC	1304	0.10	0.85	0.29
		7	33	MC	1304	0.30	0.66	0.29
		7	34	MC	1304	0.20	0.80	0.36
		7	49	SA	1303	1.00	0.34	0.48
		7	50	CR	750	2.30	0.75	0.52
		7	57	MC	1304	0.40	0.74	0.19
		7	58	MC	1304	0.60	0.59	0.46

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
5	Mathematics	7	59	MC	1304	0.30	0.78	0.25
		7	73	CR	758	1.20	1.86	0.56
		8	6	MC	1277	0.20	0.37	0.29
		8	7	MC	1277	0.00	0.33	0.24
		8	16	MC	1277	0.10	0.78	0.37
		8	17	MC	1277	0.20	0.64	0.21
		8	32	MC	1277	0.00	0.64	0.41
		8	33	MC	1277	0.00	0.61	0.38
		8	34	MC	1277	0.00	0.83	0.38
		8	49	SA	1274	0.50	0.68	0.47
		8	50	CR	753	1.20	2.12	0.52
		8	57	MC	1277	0.20	0.70	0.35
		8	58	MC	1277	0.30	0.74	0.47
		8	59	MC	1277	0.20	0.53	0.32
		8	73	CR	744	2.60	1.84	0.68

**Table C-7. 2008-09 MONTCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Reading Grade 5**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
5	Reading	0	1	MC	10331	0.10	0.86	0.38
		0	2	MC	10331	0.20	0.82	0.37
		0	3	MC	10331	0.20	0.72	0.46
		0	4	MC	10331	0.10	0.80	0.32
		0	5	MC	10331	0.30	0.82	0.39
		0	6	MC	10331	0.30	0.82	0.36
		0	7	MC	10331	0.20	0.58	0.36
		0	15	MC	10331	0.20	0.83	0.36
		0	16	MC	10331	0.20	0.69	0.33
		0	17	MC	10331	0.20	0.69	0.40
		0	18	MC	10331	0.20	0.84	0.33
		0	19	MC	10331	0.20	0.59	0.41
		0	20	MC	10331	0.20	0.58	0.48
		0	21	MC	10331	0.20	0.81	0.45
		0	22	MC	10331	0.30	0.74	0.42
		0	23	MC	10331	0.30	0.73	0.29
		0	24	MC	10331	0.60	0.51	0.42
		0	25	MC	10331	0.30	0.80	0.36
		0	26	MC	10331	0.50	0.86	0.45
		0	27	CR	10331	0.90	1.66	0.52
		0	28	MC	10331	0.10	0.74	0.36
		0	29	MC	10331	0.10	0.83	0.30
		0	30	MC	10331	0.10	0.70	0.39
		0	31	MC	10331	0.10	0.86	0.43
		0	32	MC	10331	0.10	0.85	0.37
		0	33	MC	10331	0.20	0.77	0.43
		0	34	MC	10331	0.20	0.62	0.32
		0	35	MC	10331	0.20	0.64	0.27
		0	36	MC	10331	0.30	0.53	0.39
		0	37	MC	10331	0.10	0.64	0.27
		0	38	MC	10331	0.20	0.76	0.38
		0	39	MC	10331	0.20	0.73	0.36
		0	40	MC	10331	0.10	0.61	0.25
		0	41	MC	10331	0.10	0.69	0.42
		0	55	MC	10331	0.20	0.61	0.42
		0	56	MC	10331	0.10	0.73	0.33
		0	57	MC	10331	0.20	0.53	0.40
		0	58	MC	10331	0.20	0.75	0.36
		0	59	MC	10331	0.20	0.63	0.41
		0	60	MC	10331	0.30	0.82	0.36
		0	61	MC	10331	0.20	0.76	0.42
		0	69	MC	10331	0.20	0.60	0.35
		0	70	MC	10331	0.20	0.74	0.32
		0	71	MC	10331	0.20	0.87	0.44
		0	72	MC	10331	0.20	0.85	0.43
		0	73	MC	10331	0.20	0.74	0.44
		0	74	MC	10331	0.30	0.66	0.46
		0	75	MC	10331	0.40	0.56	0.42
		0	76	MC	10331	0.30	0.58	0.47

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
5	Reading	0	77	MC	10331	0.30	0.75	0.46
		0	78	MC	10331	0.50	0.75	0.36
		0	79	MC	10331	0.30	0.62	0.40
		0	80	MC	10331	0.60	0.73	0.42
		0	81	CR	10331	0.90	1.22	0.53
		1	8	MC	1320	0.30	0.44	0.15
		1	9	MC	1320	0.20	0.66	0.29
		1	10	MC	1320	0.20	0.62	0.32
		1	11	MC	1320	0.20	0.67	0.40
		1	12	MC	1320	0.50	0.50	0.23
		1	13	MC	1320	0.20	0.68	0.32
		1	14	MC	1320	0.20	0.56	0.19
		1	42	MC	1320	0.20	0.78	0.51
		1	43	MC	1320	0.30	0.74	0.49
		1	44	MC	1320	0.30	0.89	0.34
		1	45	MC	1320	0.20	0.75	0.34
		1	46	MC	1320	0.20	0.79	0.47
		1	47	MC	1320	0.50	0.81	0.35
		1	48	MC	1320	0.70	0.80	0.54
		1	49	MC	1320	0.20	0.78	0.21
		1	50	MC	1320	0.50	0.74	0.35
		1	51	MC	1320	0.30	0.63	0.27
		1	52	MC	1320	0.80	0.57	0.24
		1	53	MC	1320	0.50	0.42	0.38
		1	54	CR	755	0.50	1.96	0.44
		1	62	MC	1320	0.20	0.58	0.37
		1	63	MC	1320	0.20	0.80	0.41
		1	64	MC	1320	0.20	0.87	0.37
		1	65	MC	1320	0.20	0.70	0.46
		1	66	MC	1320	0.10	0.83	0.45
		1	67	MC	1320	0.20	0.61	0.39
		1	68	MC	1320	0.10	0.70	0.40
		2	8	MC	1273	0.00	0.69	0.35
		2	9	MC	1273	0.00	0.85	0.41
		2	10	MC	1273	0.00	0.67	0.42
		2	11	MC	1273	0.10	0.64	0.35
		2	12	MC	1273	0.10	0.81	0.33
		2	13	MC	1273	0.00	0.38	0.25
		2	14	MC	1273	0.00	0.59	0.44
		2	42	MC	1273	0.20	0.77	0.39
		2	43	MC	1273	0.10	0.54	0.30
		2	44	MC	1273	0.20	0.31	0.08
		2	45	MC	1273	0.20	0.19	0.18
		2	46	MC	1273	0.20	0.81	0.53
		2	47	MC	1273	0.20	0.63	0.36
		2	48	MC	1273	0.50	0.87	0.38
		2	49	MC	1273	0.20	0.27	-0.03
		2	50	MC	1273	0.40	0.74	0.50
		2	51	MC	1273	0.30	0.83	0.29
		2	52	MC	1273	0.30	0.88	0.41
		2	53	MC	1273	0.40	0.16	0.11

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
5	Reading	2	54	CR	748	0.00	1.64	0.53
		2	62	MC	1273	0.20	0.87	0.43
		2	63	MC	1273	0.20	0.64	0.37
		2	64	MC	1273	0.20	0.67	0.30
		2	65	MC	1273	0.20	0.55	0.46
		2	66	MC	1273	0.20	0.57	0.42
		2	67	MC	1273	0.20	0.38	0.15
		2	68	MC	1273	0.20	0.40	0.28
		3	8	MC	1307	0.20	0.62	0.41
		3	9	MC	1307	0.20	0.80	0.34
		3	10	MC	1307	0.20	0.68	0.32
		3	11	MC	1307	0.10	0.66	0.37
		3	12	MC	1307	0.20	0.67	0.34
		3	13	MC	1307	0.10	0.45	0.36
		3	14	MC	1307	0.10	0.69	0.33
		3	42	MC	1307	0.20	0.76	0.38
		3	43	MC	1307	0.20	0.76	0.34
		3	44	MC	1307	0.20	0.87	0.38
		3	45	MC	1307	0.20	0.88	0.38
		3	46	MC	1307	0.20	0.64	0.31
		3	47	MC	1307	0.20	0.48	0.18
		3	48	MC	1307	0.30	0.21	-0.14
		3	49	MC	1307	0.20	0.46	0.22
		3	50	MC	1307	0.30	0.69	0.38
		3	51	MC	1307	0.50	0.52	0.30
		3	52	MC	1307	0.60	0.54	0.44
		3	53	MC	1307	0.30	0.48	0.42
		3	54	CR	597	0.20	1.83	0.33
		3	62	MC	1307	0.10	0.48	0.23
		3	63	MC	1307	0.20	0.73	0.35
		3	64	MC	1307	0.10	0.54	0.28
		3	65	MC	1307	0.10	0.81	0.39
		3	66	MC	1307	0.10	0.55	0.32
		3	67	MC	1307	0.20	0.66	0.41
		3	68	MC	1307	0.20	0.70	0.40
		4	8	MC	1282	0.10	0.80	0.37
		4	9	MC	1282	0.10	0.79	0.38
		4	10	MC	1282	0.00	0.71	0.25
		4	11	MC	1282	0.20	0.69	0.36
		4	12	MC	1282	0.10	0.75	0.44
		4	13	MC	1282	0.20	0.47	0.30
		4	14	MC	1282	0.10	0.76	0.41
		4	42	MC	1282	0.00	0.80	0.34
		4	43	MC	1282	0.20	0.67	0.22
		4	44	MC	1282	0.10	0.84	0.40
		4	45	MC	1282	0.10	0.62	0.38
		4	46	MC	1282	0.00	0.69	0.41
		4	47	MC	1282	0.00	0.30	0.00
		4	48	MC	1282	0.50	0.82	0.40
		4	49	MC	1282	0.20	0.74	0.50
		4	50	MC	1282	0.00	0.72	0.31

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
5	Reading	4	51	MC	1282	0.10	0.70	0.28
		4	52	MC	1282	0.30	0.66	0.33
		4	53	MC	1282	0.30	0.41	0.28
		4	54	CR	755	0.50	1.27	0.49
		4	62	MC	1282	0.10	0.31	0.21
		4	63	MC	1282	0.30	0.86	0.39
		4	64	MC	1282	0.10	0.81	0.43
		4	65	MC	1282	0.20	0.77	0.40
		4	66	MC	1282	0.20	0.92	0.37
		4	67	MC	1282	0.10	0.82	0.39
		4	68	MC	1282	0.20	0.43	0.29
		5	8	MC	1306	0.20	0.46	0.19
		5	9	MC	1306	0.30	0.69	0.34
		5	10	MC	1306	0.30	0.62	0.40
		5	11	MC	1306	0.20	0.67	0.40
		5	12	MC	1306	0.20	0.54	0.22
		5	13	MC	1306	0.20	0.68	0.34
		5	14	MC	1306	0.20	0.59	0.16
		5	42	MC	1306	0.10	0.80	0.50
		5	43	MC	1306	0.00	0.78	0.45
		5	44	MC	1306	0.10	0.88	0.32
		5	45	MC	1306	0.20	0.77	0.35
		5	46	MC	1306	0.00	0.79	0.52
		5	47	MC	1306	0.10	0.83	0.35
		5	48	MC	1306	0.20	0.83	0.50
		5	49	MC	1306	0.10	0.79	0.20
		5	50	MC	1306	0.20	0.75	0.38
		5	51	MC	1306	0.60	0.63	0.32
		5	52	MC	1306	0.50	0.55	0.26
		5	53	MC	1306	0.40	0.41	0.35
		5	54	CR	745	0.40	1.93	0.52
		5	62	MC	1306	0.20	0.57	0.37
		5	63	MC	1306	0.20	0.80	0.46
		5	64	MC	1306	0.20	0.87	0.39
		5	65	MC	1306	0.20	0.68	0.41
		5	66	MC	1306	0.10	0.80	0.42
		5	67	MC	1306	0.10	0.62	0.37
		5	68	MC	1306	0.20	0.71	0.34
6	Reading	6	8	MC	1261	0.20	0.70	0.29
		6	9	MC	1261	0.20	0.85	0.45
		6	10	MC	1261	0.20	0.67	0.46
		6	11	MC	1261	0.20	0.63	0.31
		6	12	MC	1261	0.20	0.83	0.37
		6	13	MC	1261	0.20	0.41	0.23
		6	14	MC	1261	0.20	0.62	0.39
		6	42	MC	1261	0.30	0.79	0.30
		6	43	MC	1261	0.40	0.52	0.22
		6	44	MC	1261	0.30	0.30	0.08
		6	45	MC	1261	0.50	0.19	0.18
		6	46	MC	1261	0.20	0.85	0.46
		6	47	MC	1261	0.60	0.64	0.35

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
5	Reading	6	48	MC	1261	0.50	0.87	0.36
		6	49	MC	1261	0.50	0.24	-0.07
		6	50	MC	1261	0.30	0.76	0.47
		6	51	MC	1261	0.40	0.84	0.35
		6	52	MC	1261	0.20	0.90	0.42
		6	53	MC	1261	0.30	0.18	0.11
		6	54	CR	742	0.30	1.73	0.49
		6	62	MC	1261	0.20	0.87	0.37
		6	63	MC	1261	0.20	0.66	0.37
		6	64	MC	1261	0.30	0.70	0.30
		6	65	MC	1261	0.20	0.60	0.43
		6	66	MC	1261	0.20	0.58	0.42
		6	67	MC	1261	0.20	0.37	0.16
		6	68	MC	1261	0.20	0.42	0.30
		7	8	MC	1302	0.30	0.65	0.45
		7	9	MC	1302	0.30	0.80	0.33
		7	10	MC	1302	0.40	0.71	0.29
		7	11	MC	1302	0.40	0.66	0.36
		7	12	MC	1302	0.50	0.70	0.40
		7	13	MC	1302	0.30	0.47	0.42
		7	14	MC	1302	0.30	0.70	0.28
		7	42	MC	1302	0.00	0.78	0.38
		7	43	MC	1302	0.00	0.77	0.34
		7	44	MC	1302	0.20	0.87	0.41
		7	45	MC	1302	0.20	0.88	0.39
		7	46	MC	1302	0.10	0.68	0.35
		7	47	MC	1302	0.00	0.43	0.16
		7	48	MC	1302	0.20	0.21	-0.16
		7	49	MC	1302	0.00	0.50	0.27
		7	50	MC	1302	0.50	0.68	0.38
		7	51	MC	1302	0.10	0.55	0.32
		7	52	MC	1302	0.60	0.56	0.43
		7	53	MC	1302	0.20	0.47	0.37
		7	54	CR	586	0.50	1.89	0.40
		7	62	MC	1302	0.30	0.49	0.24
		7	63	MC	1302	0.00	0.72	0.35
		7	64	MC	1302	0.10	0.55	0.23
		7	65	MC	1302	0.10	0.82	0.46
		7	66	MC	1302	0.10	0.55	0.33
		7	67	MC	1302	0.20	0.68	0.37
		7	68	MC	1302	0.00	0.73	0.39
		8	8	MC	1278	0.30	0.78	0.40
		8	9	MC	1278	0.20	0.78	0.37
		8	10	MC	1278	0.20	0.70	0.26
		8	11	MC	1278	0.20	0.67	0.37
		8	12	MC	1278	0.30	0.72	0.42
		8	13	MC	1278	0.20	0.43	0.25
		8	14	MC	1278	0.30	0.74	0.33
		8	42	MC	1278	0.10	0.78	0.32
		8	43	MC	1278	0.10	0.66	0.22
		8	44	MC	1278	0.20	0.87	0.38

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
5	Reading	8	45	MC	1278	0.20	0.64	0.32
		8	46	MC	1278	0.20	0.69	0.47
		8	47	MC	1278	0.20	0.29	-0.03
		8	48	MC	1278	0.50	0.83	0.36
		8	49	MC	1278	0.30	0.73	0.48
		8	50	MC	1278	0.20	0.70	0.28
		8	51	MC	1278	0.20	0.71	0.24
		8	52	MC	1278	0.60	0.67	0.35
		8	53	MC	1278	0.40	0.41	0.25
		8	54	CR	759	0.90	1.26	0.49
		8	62	MC	1278	0.30	0.28	0.17
		8	63	MC	1278	0.10	0.88	0.32
		8	64	MC	1278	0.20	0.79	0.46
		8	65	MC	1278	0.20	0.77	0.44
		8	66	MC	1278	0.00	0.91	0.35
		8	67	MC	1278	0.10	0.82	0.40
		8	68	MC	1278	0.00	0.46	0.27

**Table C-8. 2008-09 MONTCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Mathematics Grade 6**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
6	Mathematics	0	1	MC	10371	0.30	0.81	0.34
		0	2	MC	10371	0.20	0.92	0.32
		0	3	MC	10371	0.20	0.79	0.48
		0	4	MC	10371	0.20	0.66	0.54
		0	5	MC	10371	0.20	0.51	0.34
		0	9	MC	10371	0.20	0.71	0.42
		0	10	MC	10371	0.20	0.53	0.54
		0	11	MC	10371	0.20	0.65	0.55
		0	12	MC	10371	0.30	0.70	0.49
		0	13	MC	10371	0.30	0.32	0.33
		0	14	MC	10371	0.30	0.39	0.27
		0	15	MC	10371	0.30	0.70	0.33
		0	16	MC	10371	0.40	0.32	0.36
		0	17	MC	10371	0.90	0.44	0.27
		0	18	SA	10371	0.70	0.71	0.48
		0	19	SA	10371	0.80	0.50	0.46
		0	20	SA	10371	0.90	0.65	0.46
		0	23	CR	10371	5.50	1.53	0.59
		0	24	MC	10371	0.10	0.70	0.36
		0	25	MC	10371	0.10	0.86	0.26
		0	26	MC	10371	0.20	0.64	0.25
		0	27	MC	10371	0.20	0.46	0.42
		0	28	MC	10371	0.20	0.74	0.46
		0	29	MC	10371	0.10	0.48	0.48
		0	30	MC	10371	0.10	0.57	0.36
		0	31	MC	10371	0.20	0.68	0.29
		0	35	MC	10371	0.10	0.36	0.28
		0	36	MC	10371	0.10	0.72	0.41
		0	37	MC	10371	0.10	0.72	0.46
		0	38	MC	10371	0.10	0.66	0.45
		0	39	MC	10371	0.10	0.61	0.33
		0	40	MC	10371	0.20	0.39	0.35
		0	41	MC	10371	0.10	0.60	0.39
		0	42	MC	10371	0.20	0.72	0.32
		0	43	MC	10371	0.20	0.59	0.29
		0	44	MC	10371	0.30	0.37	0.31
		0	45	MC	10371	0.20	0.34	0.36
		0	46	MC	10371	0.20	0.46	0.27
		0	47	MC	10371	0.40	0.84	0.43
		0	49	MC	10371	0.20	0.82	0.28
		0	50	MC	10371	0.30	0.57	0.51
		0	51	MC	10371	0.20	0.53	0.46
		0	52	MC	10371	0.30	0.52	0.50
		0	53	MC	10371	0.30	0.55	0.24
		0	56	MC	10371	0.30	0.46	0.36
		0	57	MC	10371	0.30	0.51	0.29
		0	58	MC	10371	0.30	0.77	0.44
		0	59	MC	10371	0.30	0.58	0.37
		0	60	MC	10371	0.30	0.34	0.32

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
6	Mathematics	0	61	MC	10371	0.20	0.61	0.48
		0	62	MC	10371	0.30	0.51	0.35
		0	65	MC	10371	0.30	0.73	0.34
		0	66	MC	10371	0.30	0.55	0.56
		0	67	MC	10371	0.20	0.70	0.49
		0	68	MC	10371	0.20	0.47	0.41
		0	69	MC	10371	0.30	0.61	0.25
		0	70	MC	10371	0.20	0.70	0.36
		0	71	MC	10371	0.30	0.51	0.34
		0	72	MC	10371	0.50	0.77	0.41
		0	73	CR	10371	1.10	1.50	0.60
		1	6	MC	1306	0.00	0.49	0.57
		1	7	MC	1306	0.20	0.44	0.37
		1	8	MC	1306	0.10	0.69	0.41
		1	21	SA	1240	1.60	0.34	0.47
		1	22	CR	0			
		1	32	MC	1306	0.10	0.68	0.36
		1	33	MC	1306	0.20	0.39	0.17
		1	34	MC	1306	0.20	0.18	0.17
		1	48	CR	586	0.90	1.22	0.66
		1	54	MC	1306	0.30	0.69	0.36
		1	55	MC	1306	0.30	0.60	0.47
		1	63	MC	1306	0.20	0.46	0.38
		1	64	MC	1306	0.20	0.39	0.24
		2	6	MC	1307	0.20	0.95	0.23
		2	7	MC	1307	0.20	0.36	0.28
		2	8	MC	1307	0.20	0.45	0.40
		2	21	SA	1218	2.90	0.29	0.40
		2	22	CR	660	1.20	1.14	0.62
		2	32	MC	1307	0.50	0.67	0.43
		2	33	MC	1307	0.20	0.69	0.20
		2	34	MC	1307	0.20	0.75	0.43
		2	48	CR	717	1.30	1.04	0.57
		2	54	MC	1307	0.20	0.25	0.38
		2	55	MC	1307	0.30	0.43	0.20
		2	63	MC	1307	0.20	0.72	0.29
		2	64	MC	1307	0.20	0.72	0.43
		3	6	MC	1327	0.10	0.58	0.45
		3	7	MC	1327	0.20	0.48	0.23
		3	8	MC	1327	0.30	0.80	0.43
		3	21	SA	1277	1.90	0.55	0.55
		3	22	CR	587	1.40	1.20	0.56
		3	32	MC	1327	0.50	0.48	0.44
		3	33	MC	1327	0.20	0.93	0.25
		3	34	MC	1327	0.30	0.77	0.23
		3	48	CR	640	0.80	1.95	0.67
		3	54	MC	1327	0.40	0.71	0.52
		3	55	MC	1327	0.40	0.62	0.39
		3	63	MC	1327	0.50	0.45	0.25
		3	64	MC	1327	0.50	0.65	0.41
		4	6	MC	1279	0.20	0.63	0.47

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Mathematics	4	7	MC	1279	0.20	0.82	0.35
		4	8	MC	1279	0.20	0.62	0.40
		4	21	SA	1220	0.80	0.50	0.52
		4	22	CR	739	1.40	1.43	0.59
		4	32	MC	1279	0.00	0.30	0.17
		4	33	MC	1279	0.20	0.38	0.19
		4	34	MC	1279	0.00	0.48	0.03
		4	48	CR	0			
		4	54	MC	1279	0.20	0.62	0.46
		4	55	MC	1279	0.20	0.49	0.38
		4	63	MC	1279	0.20	0.62	0.34
		4	64	MC	1279	0.20	0.37	0.39
		5	6	MC	1290	0.40	0.52	0.49
		5	7	MC	1290	0.20	0.40	0.30
		5	8	MC	1290	0.20	0.42	0.46
		5	21	SA	1187	0.70	0.79	0.43
		5	22	CR	743	2.30	1.13	0.64
		5	32	MC	1290	0.20	0.55	0.23
		5	33	MC	1290	0.20	0.56	0.48
		5	34	MC	1290	0.20	0.48	0.32
		5	48	CR	593	1.20	1.23	0.65
		5	54	MC	1290	0.20	0.37	0.47
		5	55	MC	1290	0.20	0.81	0.23
		5	63	MC	1290	0.70	0.62	0.27
		5	64	MC	1290	0.20	0.87	0.37
6	Mathematics	6	6	MC	1300	0.20	0.51	0.55
		6	7	MC	1300	0.20	0.58	0.54
		6	8	MC	1300	0.30	0.62	0.46
		6	21	SA	1240	0.70	0.44	0.50
		6	22	CR	631	1.10	1.25	0.61
		6	32	MC	1300	0.30	0.55	0.46
		6	33	MC	1300	0.10	0.55	0.26
		6	34	MC	1300	0.30	0.34	0.24
		6	48	CR	707	1.10	1.10	0.60
		6	54	MC	1300	0.10	0.62	0.40
		6	55	MC	1300	0.10	0.75	0.34
		6	63	MC	1300	0.30	0.40	0.30
		6	64	MC	1300	0.20	0.48	0.40
		7	6	MC	1294	0.40	0.77	0.57
		7	7	MC	1294	0.70	0.35	0.40
		7	8	MC	1294	0.70	0.30	0.33
		7	21	SA	1216	0.80	0.72	0.35
		7	22	CR	660	1.10	1.19	0.56
		7	32	MC	1294	0.20	0.76	0.31
		7	33	MC	1294	0.20	0.36	0.16
		7	34	MC	1294	0.10	0.92	0.18
		7	48	CR	616	0.50	2.04	0.64
		7	54	MC	1294	0.20	0.58	0.32
		7	55	MC	1294	0.30	0.30	0.17
		7	63	MC	1294	0.20	0.29	0.19
		7	64	MC	1294	0.20	0.61	0.49

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
6	Mathematics	8	6	MC	1267	0.20	0.93	0.28
		8	7	MC	1267	0.20	0.39	0.25
		8	8	MC	1267	0.40	0.39	0.41
		8	21	SA	1185	2.60	0.22	0.44
		8	22	CR	732	1.60	1.29	0.63
		8	32	MC	1267	0.00	0.91	0.18
		8	33	MC	1267	0.00	0.84	0.30
		8	34	MC	1267	0.00	0.55	0.35
		8	48	CR	0			
		8	54	MC	1267	0.20	0.65	0.35
		8	55	MC	1267	0.10	0.56	0.44
		8	63	MC	1267	0.20	0.56	0.40
		8	64	MC	1267	0.10	0.46	0.44

**Table C-9. 2008-09 MONTCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Reading Grade 6**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
6	Reading	0	1	MC	10377	0.00	0.90	0.35
		0	2	MC	10377	0.10	0.84	0.40
		0	3	MC	10377	0.10	0.91	0.25
		0	4	MC	10377	0.10	0.79	0.34
		0	5	MC	10377	0.10	0.84	0.38
		0	6	MC	10377	0.20	0.60	0.33
		0	7	MC	10377	0.00	0.67	0.46
		0	15	MC	10377	0.10	0.80	0.45
		0	16	MC	10377	0.20	0.55	0.32
		0	17	MC	10377	0.20	0.49	0.34
		0	18	MC	10377	0.20	0.69	0.33
		0	19	MC	10377	0.20	0.63	0.43
		0	20	MC	10377	0.10	0.67	0.31
		0	21	MC	10377	0.20	0.60	0.41
		0	22	MC	10377	0.20	0.64	0.47
		0	23	MC	10377	0.20	0.87	0.45
		0	24	MC	10377	0.40	0.56	0.23
		0	25	MC	10377	0.30	0.80	0.51
		0	26	MC	10377	0.30	0.69	0.27
		0	27	CR	10377	0.60	1.77	0.54
		0	28	MC	10377	0.10	0.85	0.37
		0	29	MC	10377	0.10	0.67	0.35
		0	30	MC	10377	0.10	0.83	0.51
		0	31	MC	10377	0.20	0.70	0.44
		0	32	MC	10377	0.20	0.50	0.47
		0	33	MC	10377	0.30	0.75	0.43
		0	34	MC	10377	0.10	0.86	0.41
		0	35	MC	10377	0.10	0.76	0.30
		0	36	MC	10377	0.10	0.51	0.22
		0	37	MC	10377	0.10	0.89	0.48
		0	38	MC	10377	0.10	0.72	0.31
		0	39	MC	10377	0.20	0.47	0.35
		0	40	MC	10377	0.10	0.50	0.41
		0	41	MC	10377	0.20	0.68	0.49
		0	55	MC	10377	0.10	0.69	0.36
		0	56	MC	10377	0.10	0.60	0.43
		0	57	MC	10377	0.20	0.78	0.47
		0	58	MC	10377	0.20	0.70	0.25
		0	59	MC	10377	0.20	0.68	0.41
		0	60	MC	10377	0.20	0.58	0.39
		0	61	MC	10377	0.10	0.68	0.33
		0	69	MC	10377	0.20	0.81	0.36
		0	70	MC	10377	0.10	0.80	0.33
		0	71	MC	10377	0.20	0.78	0.40
		0	72	MC	10377	0.20	0.78	0.35
		0	73	MC	10377	0.10	0.61	0.37
		0	74	MC	10377	0.10	0.85	0.42
		0	75	MC	10377	0.20	0.74	0.39
		0	76	MC	10377	0.20	0.64	0.33

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
6	Reading	0	77	MC	10377	0.20	0.63	0.43
		0	78	MC	10377	0.30	0.84	0.48
		0	79	MC	10377	0.30	0.72	0.44
		0	80	MC	10377	0.40	0.76	0.44
		0	81	CR	10377	0.60	1.80	0.47
		1	8	MC	1317	0.10	0.73	0.46
		1	9	MC	1317	0.00	0.77	0.29
		1	10	MC	1317	0.00	0.66	0.46
		1	11	MC	1317	0.20	0.83	0.43
		1	12	MC	1317	0.20	0.67	0.41
		1	13	MC	1317	0.00	0.91	0.19
		1	14	MC	1317	0.10	0.48	0.15
		1	42	MC	1317	0.20	0.65	0.39
		1	43	MC	1317	0.20	0.67	0.40
		1	44	MC	1317	0.20	0.67	0.28
		1	45	MC	1317	0.30	0.70	0.51
		1	46	MC	1317	0.20	0.77	0.45
		1	47	MC	1317	0.30	0.74	0.48
		1	48	MC	1317	0.50	0.72	0.34
		1	49	MC	1317	0.50	0.60	0.23
		1	50	MC	1317	0.50	0.79	0.44
		1	51	MC	1317	0.50	0.78	0.44
		1	52	MC	1317	0.50	0.67	0.49
		1	53	MC	1317	0.60	0.55	0.37
		1	54	CR	577	0.70	1.05	0.51
		1	62	MC	1317	0.20	0.62	0.23
		1	63	MC	1317	0.20	0.46	0.30
		1	64	MC	1317	0.30	0.79	0.38
		1	65	MC	1317	0.20	0.81	0.48
		1	66	MC	1317	0.50	0.83	0.46
		1	67	MC	1317	0.20	0.76	0.45
		1	68	MC	1317	0.30	0.65	0.45
		2	8	MC	1307	0.10	0.48	0.24
		2	9	MC	1307	0.10	0.69	0.34
		2	10	MC	1307	0.20	0.83	0.46
		2	11	MC	1307	0.10	0.85	0.49
		2	12	MC	1307	0.10	0.64	0.30
		2	13	MC	1307	0.10	0.60	0.41
		2	14	MC	1307	0.10	0.78	0.39
		2	42	MC	1307	0.20	0.54	0.26
		2	43	MC	1307	0.20	0.80	0.35
		2	44	MC	1307	0.20	0.82	0.45
		2	45	MC	1307	0.20	0.66	0.46
		2	46	MC	1307	0.20	0.79	0.40
		2	47	MC	1307	0.40	0.85	0.38
		2	48	MC	1307	0.20	0.77	0.36
		2	49	MC	1307	0.20	0.77	0.41
		2	50	MC	1307	0.20	0.91	0.41
		2	51	MC	1307	0.50	0.87	0.40
		2	52	MC	1307	0.50	0.40	0.13
		2	53	MC	1307	0.50	0.67	0.39

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
6	Reading	2	54	CR	1158	0.20	1.71	0.53
		2	62	MC	1307	0.20	0.65	0.45
		2	63	MC	1307	0.10	0.79	0.44
		2	64	MC	1307	0.20	0.78	0.45
		2	65	MC	1307	0.30	0.83	0.38
		2	66	MC	1307	0.20	0.57	0.31
		2	67	MC	1307	0.10	0.38	0.20
		2	68	MC	1307	0.10	0.54	0.35
		3	8	MC	1325	0.00	0.92	0.11
		3	9	MC	1325	0.00	0.90	0.39
		3	10	MC	1325	0.20	0.71	0.30
		3	11	MC	1325	0.20	0.92	0.32
		3	12	MC	1325	0.20	0.76	0.34
		3	13	MC	1325	0.10	0.92	0.33
		3	14	MC	1325	0.00	0.75	0.31
		3	42	MC	1325	0.30	0.68	0.28
		3	43	MC	1325	0.20	0.48	0.26
		3	44	MC	1325	0.20	0.73	0.32
		3	45	MC	1325	0.30	0.53	0.18
		3	46	MC	1325	0.20	0.77	0.46
		3	47	MC	1325	0.10	0.74	0.42
		3	48	MC	1325	0.20	0.52	0.26
		3	49	MC	1325	0.20	0.70	0.48
		3	50	MC	1325	0.10	0.82	0.53
		3	51	MC	1325	0.40	0.60	0.38
		3	52	MC	1325	0.40	0.54	0.31
		3	53	MC	1325	0.50	0.60	0.41
		3	54	CR	753	0.70	2.01	0.49
		3	62	MC	1325	0.20	0.83	0.27
		3	63	MC	1325	0.20	0.43	0.29
		3	64	MC	1325	0.20	0.83	0.37
		3	65	MC	1325	0.30	0.35	0.16
		3	66	MC	1325	0.50	0.65	0.36
		3	67	MC	1325	0.30	0.51	0.26
		3	68	MC	1325	0.30	0.68	0.42
		4	8	MC	1280	0.10	0.59	0.26
		4	9	MC	1280	0.10	0.77	0.24
		4	10	MC	1280	0.00	0.83	0.35
		4	11	MC	1280	0.20	0.79	0.29
		4	12	MC	1280	0.50	0.81	0.40
		4	13	MC	1280	0.00	0.76	0.38
		4	14	MC	1280	0.00	0.65	0.38
		4	42	MC	1280	0.10	0.81	0.38
		4	43	MC	1280	0.00	0.53	0.34
		4	44	MC	1280	0.00	0.80	0.38
		4	45	MC	1280	0.00	0.89	0.37
		4	46	MC	1280	0.00	0.80	0.55
		4	47	MC	1280	0.10	0.66	0.38
		4	48	MC	1280	0.00	0.55	0.32
		4	49	MC	1280	0.10	0.90	0.46
		4	50	MC	1280	0.10	0.42	0.19

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
6	Reading	4	51	MC	1280	0.10	0.54	0.29
		4	52	MC	1280	0.10	0.35	0.17
		4	53	MC	1280	0.20	0.79	0.48
		4	54	CR	759	0.50	1.92	0.55
		4	62	MC	1280	0.20	0.45	0.34
		4	63	MC	1280	0.20	0.71	0.49
		4	64	MC	1280	0.20	0.79	0.50
		4	65	MC	1280	0.20	0.91	0.38
		4	66	MC	1280	0.20	0.75	0.46
		4	67	MC	1280	0.20	0.59	0.37
		4	68	MC	1280	0.20	0.40	0.21
		5	8	MC	1289	0.10	0.79	0.42
		5	9	MC	1289	0.00	0.81	0.25
		5	10	MC	1289	0.00	0.69	0.37
		5	11	MC	1289	0.00	0.88	0.35
		5	12	MC	1289	0.10	0.69	0.33
		5	13	MC	1289	0.00	0.92	0.13
		5	14	MC	1289	0.00	0.48	0.12
		5	42	MC	1289	0.40	0.67	0.29
		5	43	MC	1289	0.10	0.72	0.45
		5	44	MC	1289	0.20	0.73	0.24
		5	45	MC	1289	0.20	0.72	0.44
		5	46	MC	1289	0.20	0.82	0.45
		5	47	MC	1289	0.20	0.78	0.42
		5	48	MC	1289	0.50	0.79	0.32
		5	49	MC	1289	0.40	0.60	0.15
		5	50	MC	1289	0.20	0.87	0.39
		5	51	MC	1289	0.50	0.82	0.39
		5	52	MC	1289	0.20	0.74	0.48
		5	53	MC	1289	0.30	0.60	0.39
		5	54	CR	659	0.30	1.85	0.44
		5	62	MC	1289	0.10	0.67	0.17
		5	63	MC	1289	0.00	0.49	0.30
		5	64	MC	1289	0.00	0.81	0.39
		5	65	MC	1289	0.00	0.86	0.39
		5	66	MC	1289	0.20	0.86	0.45
		5	67	MC	1289	0.00	0.80	0.40
		5	68	MC	1289	0.00	0.70	0.39
		6	8	MC	1300	0.10	0.50	0.24
		6	9	MC	1300	0.00	0.69	0.35
		6	10	MC	1300	0.00	0.83	0.47
		6	11	MC	1300	0.00	0.85	0.46
		6	12	MC	1300	0.10	0.63	0.28
		6	13	MC	1300	0.00	0.57	0.36
		6	14	MC	1300	0.00	0.76	0.34
		6	42	MC	1300	0.20	0.55	0.25
		6	43	MC	1300	0.20	0.81	0.32
		6	44	MC	1300	0.20	0.81	0.46
		6	45	MC	1300	0.20	0.68	0.45
		6	46	MC	1300	0.20	0.80	0.41
		6	47	MC	1300	0.20	0.86	0.36

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
6	Reading	6	48	MC	1300	0.30	0.75	0.36
		6	49	MC	1300	0.20	0.78	0.43
		6	50	MC	1300	0.20	0.91	0.42
		6	51	MC	1300	0.30	0.88	0.44
		6	52	MC	1300	0.20	0.41	0.23
		6	53	MC	1300	0.20	0.68	0.40
		6	54	CR	680	0.40	1.98	0.40
		6	62	MC	1300	0.20	0.66	0.44
		6	63	MC	1300	0.20	0.79	0.38
		6	64	MC	1300	0.20	0.78	0.45
		6	65	MC	1300	0.20	0.84	0.34
		6	66	MC	1300	0.10	0.58	0.35
		6	67	MC	1300	0.20	0.35	0.23
		6	68	MC	1300	0.10	0.54	0.38
		7	8	MC	1294	0.00	0.94	0.12
		7	9	MC	1294	0.00	0.93	0.34
		7	10	MC	1294	0.00	0.71	0.35
		7	11	MC	1294	0.00	0.93	0.24
		7	12	MC	1294	0.20	0.75	0.33
		7	13	MC	1294	0.00	0.93	0.28
		7	14	MC	1294	0.10	0.76	0.31
		7	42	MC	1294	0.20	0.70	0.26
		7	43	MC	1294	0.30	0.50	0.22
		7	44	MC	1294	0.30	0.72	0.27
		7	45	MC	1294	0.20	0.53	0.18
		7	46	MC	1294	0.20	0.79	0.40
		7	47	MC	1294	0.20	0.77	0.43
		7	48	MC	1294	0.20	0.55	0.21
		7	49	MC	1294	0.20	0.72	0.46
		7	50	MC	1294	0.20	0.85	0.50
		7	51	MC	1294	0.50	0.62	0.37
		7	52	MC	1294	0.20	0.56	0.37
		7	53	MC	1294	0.40	0.64	0.40
		7	54	CR	580	1.00	2.02	0.50
		7	62	MC	1294	0.10	0.85	0.23
		7	63	MC	1294	0.20	0.43	0.25
		7	64	MC	1294	0.10	0.82	0.42
		7	65	MC	1294	0.20	0.37	0.18
		7	66	MC	1294	0.30	0.65	0.32
		7	67	MC	1294	0.10	0.50	0.29
		7	68	MC	1294	0.20	0.71	0.38
		8	8	MC	1264	0.00	0.56	0.20
		8	9	MC	1264	0.00	0.75	0.23
		8	10	MC	1264	0.10	0.80	0.24
		8	11	MC	1264	0.00	0.79	0.26
		8	12	MC	1264	0.20	0.81	0.42
		8	13	MC	1264	0.00	0.77	0.43
		8	14	MC	1264	0.10	0.66	0.42
		8	42	MC	1264	0.20	0.84	0.29
		8	43	MC	1264	0.20	0.52	0.34
		8	44	MC	1264	0.10	0.81	0.37

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
6	Reading	8	45	MC	1264	0.10	0.89	0.38
		8	46	MC	1264	0.10	0.81	0.52
		8	47	MC	1264	0.20	0.64	0.36
		8	48	MC	1264	0.10	0.50	0.30
		8	49	MC	1264	0.20	0.90	0.43
		8	50	MC	1264	0.10	0.43	0.21
		8	51	MC	1264	0.20	0.54	0.32
		8	52	MC	1264	0.00	0.33	0.19
		8	53	MC	1264	0.10	0.81	0.43
		8	54	CR	750	0.50	1.95	0.49
		8	62	MC	1264	0.10	0.47	0.25
		8	63	MC	1264	0.00	0.70	0.49
		8	64	MC	1264	0.00	0.80	0.43
		8	65	MC	1264	0.10	0.90	0.34
		8	66	MC	1264	0.10	0.74	0.44
		8	67	MC	1264	0.10	0.60	0.31
		8	68	MC	1264	0.00	0.37	0.20

**Table C-10. 2008-09 MONTCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Mathematics Grade 7**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
7	Mathematics	0	1	MC	10630	0.10	0.79	0.31
		0	2	MC	10630	0.20	0.53	0.31
		0	3	MC	10630	0.20	0.57	0.24
		0	4	MC	10630	0.20	0.49	0.36
		0	5	MC	10630	0.20	0.38	0.41
		0	9	MC	10630	0.20	0.72	0.24
		0	10	MC	10630	0.10	0.47	0.26
		0	11	MC	10630	0.20	0.38	0.42
		0	12	MC	10630	0.20	0.67	0.34
		0	13	MC	10630	0.20	0.51	0.35
		0	14	MC	10630	0.20	0.42	0.38
		0	15	MC	10630	0.20	0.50	0.41
		0	16	MC	10630	0.40	0.51	0.26
		0	17	MC	10630	0.50	0.44	0.30
		0	18	SA	10630	0.60	0.59	0.48
		0	19	SA	10630	0.40	0.67	0.33
		0	20	SA	10630	1.00	0.68	0.46
		0	23	CR	10630	10.10	1.44	0.53
		0	24	MC	10630	0.10	0.91	0.27
		0	25	MC	10630	0.20	0.37	0.38
		0	26	MC	10630	0.20	0.27	0.39
		0	27	MC	10630	0.10	0.62	0.45
		0	28	MC	10630	0.10	0.78	0.49
		0	29	MC	10630	0.10	0.54	0.47
		0	30	MC	10630	0.20	0.56	0.40
		0	31	MC	10630	0.10	0.80	0.39
		0	35	MC	10630	0.10	0.82	0.37
		0	36	MC	10630	0.10	0.64	0.46
		0	37	MC	10630	0.20	0.39	0.33
		0	38	MC	10630	0.20	0.67	0.38
		0	39	MC	10630	0.20	0.32	0.41
		0	40	MC	10630	0.20	0.63	0.32
		0	41	MC	10630	0.20	0.44	0.39
		0	42	MC	10630	0.20	0.40	0.42
		0	43	MC	10630	0.30	0.45	0.39
		0	44	MC	10630	0.20	0.48	0.37
		0	45	MC	10630	0.20	0.52	0.46
		0	46	MC	10630	0.20	0.54	0.33
		0	47	MC	10630	0.40	0.59	0.38
		0	49	MC	10630	0.10	0.77	0.34
		0	50	MC	10630	0.20	0.54	0.42
		0	51	MC	10630	0.10	0.66	0.49
		0	52	MC	10630	0.10	0.76	0.38
		0	53	MC	10630	0.20	0.33	0.22
		0	56	MC	10630	0.20	0.63	0.26
		0	57	MC	10630	0.20	0.44	0.37
		0	58	MC	10630	0.20	0.88	0.35
		0	59	MC	10630	0.10	0.51	0.31

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
7	Mathematics	0	60	MC	10630	0.10	0.54	0.46
		0	61	MC	10630	0.10	0.46	0.31
		0	62	MC	10630	0.10	0.85	0.37
		0	65	MC	10630	0.20	0.50	0.44
		0	66	MC	10630	0.10	0.53	0.42
		0	67	MC	10630	0.20	0.65	0.36
		0	68	MC	10630	0.20	0.40	0.42
		0	69	MC	10630	0.10	0.52	0.37
		0	70	MC	10630	0.10	0.90	0.39
		0	71	MC	10630	0.10	0.83	0.38
		0	72	MC	10630	0.20	0.57	0.37
		0	73	CR	10630	1.50	0.98	0.59
		1	6	MC	1327	0.20	0.45	0.44
		1	7	MC	1327	0.10	0.79	0.27
		1	8	MC	1327	0.20	0.75	0.54
		1	21	SA	1324	0.90	0.49	0.53
		1	22	CR	741	1.50	1.95	0.58
		1	32	MC	1327	0.20	0.62	0.42
		1	33	MC	1327	0.20	0.16	0.15
		1	34	MC	1327	0.20	0.42	0.26
		1	48	CR	748	1.10	1.38	0.59
		1	54	MC	1327	0.50	0.56	0.49
		1	55	MC	1327	0.40	0.51	0.44
		1	63	MC	1327	0.20	0.80	0.27
		1	64	MC	1327	0.20	0.40	0.47
		2	6	MC	1325	0.20	0.40	0.30
		2	7	MC	1325	0.10	0.68	0.50
		2	8	MC	1325	0.10	0.69	0.43
		2	21	SA	1324	1.40	0.21	0.39
		2	22	CR	0			
		2	32	MC	1325	0.10	0.35	0.27
		2	33	MC	1325	0.20	0.71	0.41
		2	34	MC	1325	0.00	0.77	0.38
		2	48	CR	756	0.50	1.01	0.62
		2	54	MC	1325	0.10	0.75	0.31
		2	55	MC	1325	0.20	0.56	0.34
		2	63	MC	1325	0.10	0.68	0.40
		2	64	MC	1325	0.00	0.59	0.34
		3	6	MC	1350	0.20	0.39	0.31
		3	7	MC	1350	0.10	0.56	0.22
		3	8	MC	1350	0.10	0.57	0.40
		3	21	SA	1350	0.70	0.62	0.52
		3	22	CR	762	1.70	0.30	0.42
		3	32	MC	1350	0.20	0.53	0.46
		3	33	MC	1350	0.20	0.64	0.33
		3	34	MC	1350	0.10	0.40	0.46
		3	48	CR	753	0.80	1.48	0.55
		3	54	MC	1350	0.00	0.71	0.45
		3	55	MC	1350	0.10	0.31	0.19
		3	63	MC	1350	0.10	0.63	0.39

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
7	Mathematics	3	64	MC	1350	0.00	0.60	0.36
		4	6	MC	1343	0.10	0.55	0.44
		4	7	MC	1343	0.20	0.26	0.21
		4	8	MC	1343	0.10	0.60	0.40
		4	21	SA	1336	1.30	0.27	0.51
		4	22	CR	757	1.80	0.93	0.58
		4	32	MC	1343	0.30	0.53	0.46
		4	33	MC	1343	0.30	0.73	0.37
		4	34	MC	1343	0.30	0.69	0.38
		4	48	CR	755	0.70	1.12	0.61
		4	54	MC	1343	0.10	0.63	0.37
		4	55	MC	1343	0.10	0.87	0.41
		4	63	MC	1343	0.10	0.47	0.48
		4	64	MC	1343	0.10	0.51	0.23
		5	6	MC	1324	0.10	0.78	0.42
		5	7	MC	1324	0.20	0.62	0.24
		5	8	MC	1324	0.20	0.68	0.49
		5	21	SA	1321	2.10	0.35	0.47
		5	22	CR	746	1.20	1.86	0.53
		5	32	MC	1324	0.10	0.94	0.21
		5	33	MC	1324	0.20	0.61	0.30
		5	34	MC	1324	0.00	0.39	0.36
		5	48	CR	750	0.40	1.70	0.66
		5	54	MC	1324	0.10	0.49	0.39
		5	55	MC	1324	0.00	0.37	0.41
		5	63	MC	1324	0.10	0.44	0.38
		5	64	MC	1324	0.00	0.65	0.48
		6	6	MC	1320	0.20	0.25	0.30
		6	7	MC	1320	0.20	0.60	0.49
		6	8	MC	1320	0.40	0.53	0.43
		6	21	SA	1318	1.30	0.50	0.58
		6	22	CR	0			
		6	32	MC	1320	0.10	0.45	0.50
		6	33	MC	1320	0.20	0.53	0.45
		6	34	MC	1320	0.20	0.46	0.44
		6	48	CR	758	0.40	0.98	0.56
		6	54	MC	1320	0.20	0.36	0.37
		6	55	MC	1320	0.20	0.50	0.37
		6	63	MC	1320	0.20	0.76	0.38
		6	64	MC	1320	0.20	0.64	0.55
		7	6	MC	1336	0.10	0.71	0.34
		7	7	MC	1336	0.30	0.60	0.33
		7	8	MC	1336	0.20	0.33	0.30
		7	21	SA	1330	1.60	0.43	0.46
		7	22	CR	747	1.70	0.33	0.45
		7	32	MC	1336	0.00	0.80	0.39
		7	33	MC	1336	0.10	0.53	0.41
		7	34	MC	1336	0.00	0.60	0.44
		7	48	CR	749	0.30	1.65	0.66
		7	54	MC	1336	0.10	0.25	0.20

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
7	Mathematics	7	55	MC	1336	0.10	0.67	0.34
		7	63	MC	1336	0.10	0.46	0.27
		7	64	MC	1336	0.10	0.57	0.46
		8	6	MC	1304	0.40	0.25	0.14
		8	7	MC	1304	0.10	0.88	0.35
		8	8	MC	1304	0.20	0.39	0.33
		8	21	SA	1303	1.60	0.44	0.44
		8	22	CR	757	2.50	0.95	0.64
		8	32	MC	1304	0.20	0.90	0.17
		8	33	MC	1304	0.50	0.57	0.38
		8	34	MC	1304	0.10	0.57	0.18
		8	48	CR	757	1.10	1.04	0.58
		8	54	MC	1304	0.20	0.79	0.33
		8	55	MC	1304	0.20	0.86	0.27
		8	63	MC	1304	0.30	0.76	0.36
		8	64	MC	1304	0.40	0.27	0.17

Table C-11. 2008-09 MONTCAS: Item-Level Classical Statistical Results by Grade, Content Area, and Form—Reading Grade 7

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
7	Reading	0	1	MC	10649	0.10	0.86	0.36
		0	2	MC	10649	0.10	0.74	0.40
		0	3	MC	10649	0.10	0.72	0.36
		0	4	MC	10649	0.10	0.58	0.41
		0	5	MC	10649	0.10	0.79	0.44
		0	6	MC	10649	0.20	0.92	0.33
		0	7	MC	10649	0.10	0.80	0.39
		0	15	MC	10649	0.20	0.92	0.19
		0	16	MC	10649	0.10	0.78	0.42
		0	17	MC	10649	0.20	0.71	0.38
		0	18	MC	10649	0.20	0.88	0.42
		0	19	MC	10649	0.20	0.77	0.33
		0	20	MC	10649	0.20	0.72	0.46
		0	21	MC	10649	0.20	0.72	0.46
		0	22	MC	10649	0.20	0.68	0.52
		0	23	MC	10649	0.20	0.67	0.43
		0	24	MC	10649	0.50	0.72	0.44
		0	25	MC	10649	0.20	0.57	0.25
		0	26	MC	10649	0.30	0.76	0.54
		0	27	CR	10649	0.50	1.84	0.53
		0	28	MC	10649	0.10	0.59	0.38
		0	29	MC	10649	0.10	0.72	0.28
		0	30	MC	10649	0.10	0.81	0.32
		0	31	MC	10649	0.10	0.67	0.41
		0	32	MC	10649	0.10	0.80	0.46
		0	33	MC	10649	0.20	0.71	0.31
		0	34	MC	10649	0.20	0.83	0.39
		0	35	MC	10649	0.10	0.59	0.39
		0	36	MC	10649	0.20	0.74	0.42
		0	37	MC	10649	0.10	0.78	0.46
		0	38	MC	10649	0.10	0.79	0.47
		0	39	MC	10649	0.20	0.69	0.46
		0	40	MC	10649	0.10	0.85	0.50
		0	41	MC	10649	0.10	0.52	0.30
		0	55	MC	10649	0.10	0.81	0.39
		0	56	MC	10649	0.10	0.84	0.45
		0	57	MC	10649	0.20	0.76	0.45
		0	58	MC	10649	0.20	0.78	0.42
		0	59	MC	10649	0.20	0.89	0.40
		0	60	MC	10649	0.20	0.55	0.36
		0	61	MC	10649	0.20	0.72	0.39
		0	69	MC	10649	0.20	0.81	0.39
		0	70	MC	10649	0.20	0.72	0.39
		0	71	MC	10649	0.20	0.67	0.36
		0	72	MC	10649	0.20	0.57	0.39
		0	73	MC	10649	0.20	0.75	0.46
		0	74	MC	10649	0.20	0.54	0.38
		0	75	MC	10649	0.20	0.64	0.48

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
7	Reading	0	76	MC	10649	0.30	0.55	0.40
		0	77	MC	10649	0.30	0.81	0.43
		0	78	MC	10649	0.50	0.65	0.34
		0	79	MC	10649	0.30	0.75	0.44
		0	80	MC	10649	0.40	0.70	0.47
		0	81	CR	10649	1.10	1.53	0.53
		1	8	MC	1332	0.10	0.20	0.24
		1	9	MC	1332	0.10	0.90	0.31
		1	10	MC	1332	0.10	0.72	0.36
		1	11	MC	1332	0.20	0.68	0.34
		1	12	MC	1332	0.20	0.80	0.50
		1	13	MC	1332	0.10	0.55	0.29
		1	14	MC	1332	0.20	0.82	0.46
		1	42	MC	1332	0.20	0.75	0.49
		1	43	MC	1332	0.20	0.89	0.46
		1	44	MC	1332	0.20	0.48	0.14
		1	45	MC	1332	0.20	0.62	0.37
		1	46	MC	1332	0.30	0.69	0.31
		1	47	MC	1332	0.20	0.66	0.52
		1	48	MC	1332	0.20	0.84	0.43
		1	49	MC	1332	0.20	0.53	0.44
		1	50	MC	1332	0.20	0.62	0.31
		1	51	MC	1332	0.30	0.77	0.50
		1	52	MC	1332	0.30	0.56	0.42
		1	53	MC	1332	0.50	0.78	0.49
		1	54	CR	744	0.80	1.93	0.54
		1	62	MC	1332	0.30	0.70	0.39
		1	63	MC	1332	0.20	0.59	0.32
		1	64	MC	1332	0.20	0.71	0.44
		1	65	MC	1332	0.20	0.81	0.22
		1	66	MC	1332	0.20	0.74	0.49
		1	67	MC	1332	0.20	0.76	0.43
		1	68	MC	1332	0.20	0.58	0.38
		2	8	MC	1329	0.40	0.53	0.44
		2	9	MC	1329	0.30	0.92	0.36
		2	10	MC	1329	0.40	0.68	0.45
		2	11	MC	1329	0.30	0.77	0.41
		2	12	MC	1329	0.30	0.85	0.43
		2	13	MC	1329	0.40	0.71	0.50
		2	14	MC	1329	0.40	0.81	0.41
		2	42	MC	1329	0.10	0.87	0.38
		2	43	MC	1329	0.10	0.47	0.21
		2	44	MC	1329	0.20	0.49	0.43
		2	45	MC	1329	0.20	0.83	0.50
		2	46	MC	1329	0.20	0.73	0.31
		2	47	MC	1329	0.20	0.89	0.43
		2	48	MC	1329	0.20	0.84	0.49
		2	49	MC	1329	0.20	0.89	0.44
		2	50	MC	1329	0.10	0.70	0.39
		2	51	MC	1329	0.40	0.57	0.36

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
7	Reading	2	52	MC	1329	0.20	0.58	0.30
		2	53	MC	1329	0.20	0.48	0.35
		2	54	CR	755	0.30	2.01	0.53
		2	62	MC	1329	0.30	0.94	0.33
		2	63	MC	1329	0.50	0.32	0.20
		2	64	MC	1329	0.20	0.70	0.47
		2	65	MC	1329	0.20	0.74	0.34
		2	66	MC	1329	0.20	0.76	0.37
		2	67	MC	1329	0.30	0.55	0.39
		2	68	MC	1329	0.20	0.35	-0.02
		3	8	MC	1355	0.00	0.21	0.29
		3	9	MC	1355	0.00	0.87	0.38
		3	10	MC	1355	0.00	0.69	0.35
		3	11	MC	1355	0.00	0.68	0.20
		3	12	MC	1355	0.00	0.75	0.40
		3	13	MC	1355	0.00	0.83	0.43
		3	14	MC	1355	0.00	0.76	0.29
		3	42	MC	1355	0.10	0.89	0.34
		3	43	MC	1355	0.30	0.84	0.48
		3	44	MC	1355	0.10	0.82	0.52
		3	45	MC	1355	0.40	0.63	0.40
		3	46	MC	1355	0.10	0.50	0.32
		3	47	MC	1355	0.10	0.62	0.33
		3	48	MC	1355	0.10	0.75	0.48
		3	49	MC	1355	0.20	0.51	0.36
		3	50	MC	1355	0.20	0.82	0.42
		3	51	MC	1355	0.60	0.73	0.38
		3	52	MC	1355	0.10	0.78	0.47
		3	53	MC	1355	0.10	0.88	0.50
		3	54	CR	747	0.30	2.07	0.45
		3	62	MC	1355	0.10	0.92	0.36
		3	63	MC	1355	0.10	0.92	0.40
		3	64	MC	1355	0.10	0.60	0.11
		3	65	MC	1355	0.20	0.75	0.46
		3	66	MC	1355	0.10	0.87	0.45
		3	67	MC	1355	0.10	0.69	0.39
		3	68	MC	1355	0.10	0.70	0.45
		4	8	MC	1341	0.20	0.81	0.45
		4	9	MC	1341	0.30	0.86	0.40
		4	10	MC	1341	0.20	0.91	0.41
		4	11	MC	1341	0.20	0.40	0.19
		4	12	MC	1341	0.20	0.83	0.42
		4	13	MC	1341	0.20	0.89	0.42
		4	14	MC	1341	0.20	0.72	0.34
		4	42	MC	1341	0.10	0.62	0.35
		4	43	MC	1341	0.10	0.74	0.52
		4	44	MC	1341	0.10	0.41	0.30
		4	45	MC	1341	0.10	0.60	0.25
		4	46	MC	1341	0.10	0.65	0.51
		4	47	MC	1341	0.10	0.59	0.44

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
7	Reading	4	48	MC	1341	0.10	0.87	0.39
		4	49	MC	1341	0.10	0.57	0.44
		4	50	MC	1341	0.20	0.51	0.02
		4	51	MC	1341	0.50	0.84	0.43
		4	52	MC	1341	0.10	0.86	0.36
		4	53	MC	1341	0.10	0.73	0.24
		4	54	CR	758	0.10	2.06	0.52
		4	62	MC	1341	0.10	0.79	0.27
		4	63	MC	1341	0.10	0.65	0.37
		4	64	MC	1341	0.10	0.70	0.50
		4	65	MC	1341	0.10	0.74	0.42
		4	66	MC	1341	0.10	0.68	0.42
		4	67	MC	1341	0.10	0.66	0.39
		4	68	MC	1341	0.10	0.40	0.04
		5	8	MC	1324	0.20	0.20	0.25
		5	9	MC	1324	0.10	0.92	0.33
		5	10	MC	1324	0.10	0.73	0.29
		5	11	MC	1324	0.20	0.69	0.31
		5	12	MC	1324	0.10	0.82	0.49
		5	13	MC	1324	0.10	0.55	0.29
		5	14	MC	1324	0.20	0.85	0.43
		5	42	MC	1324	0.20	0.79	0.49
		5	43	MC	1324	0.10	0.90	0.43
		5	44	MC	1324	0.10	0.49	0.13
		5	45	MC	1324	0.20	0.65	0.34
		5	46	MC	1324	0.20	0.68	0.34
		5	47	MC	1324	0.20	0.71	0.48
		5	48	MC	1324	0.20	0.86	0.41
		5	49	MC	1324	0.30	0.54	0.44
		5	50	MC	1324	0.40	0.63	0.33
		5	51	MC	1324	0.50	0.78	0.54
		5	52	MC	1324	0.30	0.60	0.42
		5	53	MC	1324	0.30	0.82	0.47
		5	54	CR	750	0.80	1.93	0.53
		5	62	MC	1324	0.10	0.73	0.39
		5	63	MC	1324	0.10	0.60	0.30
		5	64	MC	1324	0.10	0.73	0.46
		5	65	MC	1324	0.10	0.84	0.17
		5	66	MC	1324	0.20	0.77	0.46
		5	67	MC	1324	0.10	0.77	0.40
		5	68	MC	1324	0.10	0.61	0.34
		6	8	MC	1322	0.00	0.53	0.42
		6	9	MC	1322	0.00	0.91	0.36
		6	10	MC	1322	0.00	0.67	0.45
		6	11	MC	1322	0.00	0.75	0.36
		6	12	MC	1322	0.10	0.84	0.43
		6	13	MC	1322	0.00	0.70	0.47
		6	14	MC	1322	0.00	0.80	0.42
		6	42	MC	1322	0.00	0.86	0.35
		6	43	MC	1322	0.20	0.81	0.39

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
7	Reading	6	44	MC	1322	0.00	0.48	0.40
		6	45	MC	1322	0.10	0.84	0.52
		6	46	MC	1322	0.00	0.75	0.30
		6	47	MC	1322	0.00	0.90	0.37
		6	48	MC	1322	0.20	0.84	0.52
		6	49	MC	1322	0.10	0.89	0.44
		6	50	MC	1322	0.20	0.69	0.38
		6	51	MC	1322	0.10	0.51	0.36
		6	52	MC	1322	0.20	0.57	0.34
		6	53	MC	1322	0.10	0.56	0.37
		6	54	CR	761	0.40	2.05	0.47
		6	62	MC	1322	0.10	0.95	0.34
		6	63	MC	1322	0.10	0.31	0.19
		6	64	MC	1322	0.10	0.67	0.45
		6	65	MC	1322	0.20	0.72	0.35
		6	66	MC	1322	0.20	0.72	0.40
		6	67	MC	1322	0.10	0.55	0.36
		6	68	MC	1322	0.10	0.45	0.08
		7	8	MC	1340	0.10	0.22	0.33
		7	9	MC	1340	0.10	0.86	0.38
		7	10	MC	1340	0.10	0.68	0.33
		7	11	MC	1340	0.10	0.69	0.23
		7	12	MC	1340	0.10	0.72	0.42
		7	13	MC	1340	0.10	0.83	0.37
		7	14	MC	1340	0.10	0.73	0.30
		7	42	MC	1340	0.40	0.90	0.33
		7	43	MC	1340	0.10	0.84	0.48
		7	44	MC	1340	0.30	0.81	0.49
		7	45	MC	1340	0.10	0.66	0.39
		7	46	MC	1340	0.10	0.48	0.35
		7	47	MC	1340	0.10	0.62	0.30
		7	48	MC	1340	0.30	0.75	0.41
		7	49	MC	1340	0.20	0.47	0.38
		7	50	MC	1340	0.30	0.82	0.47
		7	51	MC	1340	0.40	0.74	0.44
		7	52	MC	1340	0.20	0.76	0.47
		7	53	MC	1340	0.30	0.89	0.45
		7	54	CR	754	0.50	2.12	0.53
		7	62	MC	1340	0.20	0.93	0.25
		7	63	MC	1340	0.10	0.92	0.35
		7	64	MC	1340	0.10	0.60	0.10
		7	65	MC	1340	0.10	0.75	0.41
		7	66	MC	1340	0.20	0.89	0.38
		7	67	MC	1340	0.10	0.71	0.32
		7	68	MC	1340	0.10	0.72	0.42
		8	8	MC	1304	0.10	0.79	0.40
		8	9	MC	1304	0.20	0.86	0.43
		8	10	MC	1304	0.10	0.92	0.37
		8	11	MC	1304	0.10	0.41	0.23
		8	12	MC	1304	0.20	0.82	0.44

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
7	Reading	8	13	MC	1304	0.10	0.90	0.43
		8	14	MC	1304	0.10	0.71	0.32
		8	42	MC	1304	0.10	0.62	0.33
		8	43	MC	1304	0.20	0.66	0.40
		8	44	MC	1304	0.00	0.39	0.27
		8	45	MC	1304	0.20	0.58	0.24
		8	46	MC	1304	0.30	0.63	0.48
		8	47	MC	1304	0.20	0.63	0.44
		8	48	MC	1304	0.20	0.87	0.37
		8	49	MC	1304	0.40	0.57	0.42
		8	50	MC	1304	0.20	0.49	0.06
		8	51	MC	1304	0.20	0.82	0.48
		8	52	MC	1304	0.20	0.88	0.33
		8	53	MC	1304	0.20	0.70	0.28
		8	54	CR	758	0.40	2.08	0.53

**Table C-12. 2008-09 MONTCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Mathematics Grade 8**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
8	Mathematics	0	1	MC	10622	0.10	0.75	0.36
		0	2	MC	10622	0.00	1.00	0.00
		0	3	MC	10622	0.10	0.42	0.37
		0	4	MC	10622	0.20	0.65	0.38
		0	5	MC	10622	0.20	0.52	0.48
		0	9	MC	10622	0.10	0.54	0.29
		0	10	MC	10622	0.20	0.53	0.39
		0	11	MC	10622	0.20	0.40	0.37
		0	12	MC	10622	0.10	0.69	0.45
		0	13	MC	10622	0.20	0.74	0.44
		0	14	MC	10622	0.20	0.65	0.44
		0	15	MC	10622	0.20	0.62	0.50
		0	16	MC	10622	0.40	0.66	0.34
		0	17	MC	10622	0.40	0.62	0.41
		0	18	SA	10622	4.30	0.33	0.52
		0	19	SA	10622	1.20	0.41	0.44
		0	20	SA	10622	1.40	0.71	0.50
		0	23	CR	10622	5.20	1.28	0.68
		0	24	MC	10622	0.20	0.65	0.28
		0	25	MC	10622	0.20	0.46	0.22
		0	26	MC	10622	0.30	0.29	0.25
		0	27	MC	10622	0.20	0.88	0.34
		0	28	MC	10622	0.20	0.77	0.33
		0	29	MC	10622	0.20	0.53	0.32
		0	30	MC	10622	0.20	0.64	0.28
		0	31	MC	10622	0.20	0.84	0.45
		0	35	MC	10622	0.10	0.58	0.47
		0	36	MC	10622	0.20	0.58	0.30
		0	37	MC	10622	0.20	0.34	0.30
		0	38	MC	10622	0.20	0.68	0.31
		0	39	MC	10622	0.20	0.79	0.41
		0	40	MC	10622	0.20	0.36	0.41
		0	41	MC	10622	0.20	0.67	0.25
		0	42	MC	10622	0.20	0.46	0.50
		0	43	MC	10622	0.20	0.55	0.35
		0	44	MC	10622	0.20	0.65	0.37
		0	45	MC	10622	0.20	0.54	0.40
		0	46	MC	10622	0.30	0.51	0.32
		0	47	MC	10622	0.40	0.33	0.26
		0	49	MC	10622	0.30	0.60	0.56
		0	50	MC	10622	0.30	0.27	0.19
		0	51	MC	10622	0.30	0.18	0.20
		0	52	MC	10622	0.30	0.42	0.40
		0	53	MC	10622	0.20	0.87	0.31
		0	56	MC	10622	0.30	0.43	0.36
		0	57	MC	10622	0.40	0.43	0.03
		0	58	MC	10622	0.30	0.50	0.39
		0	59	MC	10622	0.20	0.44	0.41

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Mathematics	0	60	MC	10622	0.30	0.62	0.34
		0	61	MC	10622	0.30	0.57	0.34
		0	62	MC	10622	0.30	0.56	0.26
		0	65	MC	10622	0.30	0.51	0.27
		0	66	MC	10622	0.40	0.77	0.44
		0	67	MC	10622	0.30	0.70	0.45
		0	68	MC	10622	0.40	0.45	0.30
		0	69	MC	10622	0.20	0.65	0.29
		0	70	MC	10622	0.40	0.62	0.48
		0	71	MC	10622	0.30	0.69	0.39
		0	72	MC	10622	0.50	0.76	0.40
		0	73	CR	10622	1.60	2.11	0.70
		1	6	MC	1333	0.10	0.65	0.33
		1	7	MC	1333	0.10	0.64	0.42
		1	8	MC	1333	0.20	0.81	0.40
		1	21	SA	1332	3.80	0.20	0.44
		1	22	CR	582	4.50	0.26	0.36
		1	32	MC	1333	0.10	0.58	0.24
		1	33	MC	1333	0.00	0.51	0.33
		1	34	MC	1333	0.20	0.16	0.01
		1	48	CR	752	0.70	1.18	0.61
		1	54	MC	1333	0.20	0.59	0.41
		1	55	MC	1333	0.20	0.06	0.01
		1	63	MC	1333	0.50	0.53	0.35
		1	64	MC	1333	0.20	0.72	0.39
		2	6	MC	1300	0.10	0.34	0.34
		2	7	MC	1300	0.20	0.27	0.32
		2	8	MC	1300	0.00	0.54	0.40
		2	21	SA	1300	1.90	0.13	0.34
		2	22	CR	570	5.10	0.25	0.37
		2	32	MC	1300	0.10	0.12	0.06
		2	33	MC	1300	0.20	0.29	0.01
		2	34	MC	1300	0.20	0.37	0.35
		2	48	CR	575	0.90	1.44	0.64
		2	54	MC	1300	0.30	0.30	0.36
		2	55	MC	1300	0.60	0.53	0.37
		2	63	MC	1300	0.30	0.72	0.30
		2	64	MC	1300	0.30	0.47	0.56
		3	6	MC	1336	0.20	0.55	0.38
		3	7	MC	1336	0.10	0.74	0.45
		3	8	MC	1336	0.30	0.52	0.24
		3	21	SA	1336	3.10	0.31	0.51
		3	22	CR	619	4.80	0.58	0.51
		3	32	MC	1336	0.20	0.61	0.36
		3	33	MC	1336	0.30	0.43	0.22
		3	34	MC	1336	0.10	0.60	0.23
		3	48	CR	748	3.30	0.72	0.62
		3	54	MC	1336	0.10	0.58	0.28
		3	55	MC	1336	0.20	0.53	0.42
		3	63	MC	1336	0.10	0.36	0.35

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Mathematics	3	64	MC	1336	0.10	0.17	0.08
		4	6	MC	1331	0.20	0.36	0.44
		4	7	MC	1331	0.00	0.68	0.18
		4	8	MC	1331	0.30	0.22	0.10
		4	21	SA	1329	1.10	0.50	0.52
		4	22	CR	749	2.50	1.22	0.58
		4	32	MC	1331	0.10	0.38	0.26
		4	33	MC	1331	0.10	0.36	0.33
		4	34	MC	1331	0.10	0.42	0.25
		4	48	CR	588	1.70	1.29	0.63
		4	54	MC	1331	0.40	0.75	0.39
		4	55	MC	1331	0.30	0.40	0.23
		4	63	MC	1331	0.40	0.43	0.28
		4	64	MC	1331	0.50	0.52	0.33
		5	6	MC	1320	0.20	0.53	0.41
		5	7	MC	1320	0.20	0.46	0.25
		5	8	MC	1320	0.20	0.27	0.11
		5	21	SA	1319	1.40	0.36	0.45
		5	22	CR	752	4.00	2.08	0.63
		5	32	MC	1320	0.30	0.70	0.45
		5	33	MC	1320	0.20	0.29	0.24
		5	34	MC	1320	0.20	0.76	0.36
		5	48	CR	755	1.20	1.17	0.61
		5	54	MC	1320	0.20	0.59	0.42
		5	55	MC	1320	0.60	0.31	0.08
		5	63	MC	1320	0.20	0.46	0.34
		5	64	MC	1320	0.40	0.16	0.08
		6	6	MC	1332	0.50	0.27	0.21
		6	7	MC	1332	0.30	0.70	0.37
		6	8	MC	1332	0.20	0.13	0.12
		6	21	SA	1331	2.80	0.27	0.54
		6	22	CR	756	2.90	2.04	0.63
		6	32	MC	1332	0.20	0.48	0.34
		6	33	MC	1332	0.20	0.50	0.43
		6	34	MC	1332	0.20	0.14	-0.12
		6	48	CR	581	0.70	1.56	0.61
		6	54	MC	1332	0.20	0.57	0.42
		6	55	MC	1332	0.30	0.53	0.32
		6	63	MC	1332	0.30	0.52	0.28
		6	64	MC	1332	0.30	0.31	0.12
		7	6	MC	1340	0.20	0.62	0.51
		7	7	MC	1340	0.10	0.74	0.36
		7	8	MC	1340	0.10	0.46	0.35
		7	21	SA	1340	1.80	0.47	0.57
		7	22	CR	622	3.20	0.59	0.52
		7	32	MC	1340	0.20	0.80	0.31
		7	33	MC	1340	0.20	0.76	0.32
		7	34	MC	1340	0.30	0.28	0.24
		7	48	CR	751	2.40	0.70	0.60
		7	54	MC	1340	0.20	0.66	0.32

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Mathematics	7	55	MC	1340	0.40	0.58	0.23
		7	63	MC	1340	0.20	0.17	0.28
		7	64	MC	1340	0.40	0.68	0.50
		8	6	MC	1329	0.70	0.28	0.48
		8	7	MC	1329	0.20	0.50	0.43
		8	8	MC	1329	0.20	0.93	0.30
		8	21	SA	1325	3.60	0.31	0.51
		8	22	CR	756	2.80	1.17	0.62
		8	32	MC	1329	0.50	0.33	0.23
		8	33	MC	1329	0.50	0.54	0.34
		8	34	MC	1329	0.40	0.64	0.37
		8	48	CR	591	1.00	1.15	0.63
		8	54	MC	1329	0.60	0.40	0.28
		8	55	MC	1329	0.20	0.61	0.42
		8	63	MC	1329	0.20	0.35	0.40
		8	64	MC	1329	0.20	0.62	0.47

Table C-13. 2008-09 MONTCAS: Item-Level Classical Statistical Results by Grade, Content Area, and Form—Reading Grade 8

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
8	Reading	0	1	MC	10635	0.00	0.79	0.24
		0	2	MC	10635	0.00	0.92	0.40
		0	3	MC	10635	0.10	0.65	0.36
		0	4	MC	10635	0.10	0.66	0.40
		0	5	MC	10635	0.10	0.76	0.30
		0	6	MC	10635	0.20	0.77	0.36
		0	7	MC	10635	0.00	0.81	0.37
		0	15	MC	10635	0.20	0.79	0.37
		0	16	MC	10635	0.10	0.85	0.45
		0	17	MC	10635	0.10	0.75	0.47
		0	18	MC	10635	0.20	0.83	0.49
		0	19	MC	10635	0.10	0.83	0.45
		0	20	MC	10635	0.10	0.89	0.46
		0	21	MC	10635	0.10	0.69	0.35
		0	22	MC	10635	0.20	0.83	0.52
		0	23	MC	10635	0.20	0.71	0.38
		0	24	MC	10635	0.60	0.67	0.41
		0	25	MC	10635	0.20	0.76	0.41
		0	26	MC	10635	0.20	0.86	0.45
		0	27	CR	10635	0.90	1.98	0.57
		0	28	MC	10635	0.20	0.77	0.24
		0	29	MC	10635	0.20	0.77	0.40
		0	30	MC	10635	0.20	0.65	0.40
		0	31	MC	10635	0.20	0.70	0.47
		0	32	MC	10635	0.20	0.83	0.45
		0	33	MC	10635	0.20	0.80	0.35
		0	34	MC	10635	0.20	0.84	0.38
		0	35	MC	10635	0.20	0.74	0.34
		0	36	MC	10635	0.20	0.72	0.41
		0	37	MC	10635	0.20	0.61	0.39
		0	38	MC	10635	0.20	0.63	0.42
		0	39	MC	10635	0.40	0.70	0.31
		0	40	MC	10635	0.20	0.70	0.35
		0	41	MC	10635	0.10	0.65	0.44
		0	55	MC	10635	0.30	0.69	0.39
		0	56	MC	10635	0.30	0.67	0.32
		0	57	MC	10635	0.30	0.52	0.41
		0	58	MC	10635	0.30	0.76	0.33
		0	59	MC	10635	0.30	0.70	0.27
		0	60	MC	10635	0.40	0.81	0.42
		0	61	MC	10635	0.30	0.87	0.42
		0	69	MC	10635	0.30	0.71	0.38
		0	70	MC	10635	0.40	0.66	0.45
		0	71	MC	10635	0.40	0.70	0.42
		0	72	MC	10635	0.30	0.75	0.46
		0	73	MC	10635	0.30	0.72	0.44
		0	74	MC	10635	0.30	0.78	0.45
		0	75	MC	10635	0.30	0.80	0.49

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Reading	0	76	MC	10635	0.40	0.58	0.38
		0	77	MC	10635	0.40	0.82	0.48
		0	78	MC	10635	0.60	0.61	0.44
		0	79	MC	10635	0.40	0.76	0.45
		0	80	MC	10635	0.40	0.85	0.53
		0	81	CR	10635	1.20	1.95	0.47
		1	8	MC	1338	0.10	0.56	0.44
		1	9	MC	1338	0.10	0.73	0.49
		1	10	MC	1338	0.20	0.25	0.08
		1	11	MC	1338	0.10	0.69	0.48
		1	12	MC	1338	0.10	0.63	0.48
		1	13	MC	1338	0.10	0.83	0.29
		1	14	MC	1338	0.10	0.67	0.39
		1	42	MC	1338	0.30	0.25	0.17
		1	43	MC	1338	0.40	0.47	0.30
		1	44	MC	1338	0.40	0.52	0.45
		1	45	MC	1338	0.40	0.70	0.39
		1	46	MC	1338	0.30	0.83	0.34
		1	47	MC	1338	0.30	0.80	0.41
		1	48	MC	1338	0.40	0.65	0.31
		1	49	MC	1338	0.40	0.32	-0.07
		1	50	MC	1338	0.40	0.74	0.50
		1	51	MC	1338	0.50	0.76	0.35
		1	52	MC	1338	0.40	0.78	0.51
		1	53	MC	1338	0.40	0.78	0.47
		1	54	CR	743	1.20	1.93	0.56
		1	62	MC	1338	0.20	0.85	0.38
		1	63	MC	1338	0.10	0.84	0.51
		1	64	MC	1338	0.20	0.82	0.55
		1	65	MC	1338	0.20	0.69	0.49
		1	66	MC	1338	0.30	0.58	0.43
		1	67	MC	1338	0.10	0.47	0.29
		1	68	MC	1338	0.10	0.79	0.55
		2	8	MC	1304	0.10	0.48	0.21
		2	9	MC	1304	0.10	0.47	0.29
		2	10	MC	1304	0.00	0.85	0.28
		2	11	MC	1304	0.10	0.57	0.25
		2	12	MC	1304	0.10	0.80	0.41
		2	13	MC	1304	0.00	0.74	0.48
		2	14	MC	1304	0.00	0.51	0.20
		2	42	MC	1304	0.30	0.68	0.47
		2	43	MC	1304	0.30	0.77	0.35
		2	44	MC	1304	0.30	0.79	0.41
		2	45	MC	1304	0.30	0.78	0.48
		2	46	MC	1304	0.20	0.69	0.39
		2	47	MC	1304	0.30	0.50	0.34
		2	48	MC	1304	0.20	0.88	0.46
		2	49	MC	1304	0.40	0.67	0.32
		2	50	MC	1304	0.50	0.78	0.38
		2	51	MC	1304	0.70	0.83	0.52

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Reading	2	52	MC	1304	0.20	0.73	0.43
		2	53	MC	1304	0.30	0.72	0.45
		2	54	CR	744	0.90	2.32	0.53
		2	62	MC	1304	0.50	0.80	0.31
		2	63	MC	1304	0.80	0.41	0.16
		2	64	MC	1304	0.50	0.90	0.45
		2	65	MC	1304	0.50	0.81	0.48
		2	66	MC	1304	0.60	0.71	0.42
		2	67	MC	1304	0.50	0.82	0.44
		2	68	MC	1304	0.50	0.77	0.41
		3	8	MC	1333	0.10	0.72	0.43
		3	9	MC	1333	0.00	0.64	0.26
		3	10	MC	1333	0.10	0.87	0.40
		3	11	MC	1333	0.00	0.66	0.46
		3	12	MC	1333	0.10	0.53	0.32
		3	13	MC	1333	0.00	0.61	0.50
		3	14	MC	1333	0.00	0.42	0.28
		3	42	MC	1333	0.20	0.36	0.18
		3	43	MC	1333	0.40	0.70	0.37
		3	44	MC	1333	0.40	0.56	0.26
		3	45	MC	1333	0.20	0.73	0.39
		3	46	MC	1333	0.30	0.74	0.32
		3	47	MC	1333	0.40	0.67	0.45
		3	48	MC	1333	0.30	0.62	0.48
		3	49	MC	1333	0.20	0.84	0.43
		3	50	MC	1333	0.20	0.34	-0.04
		3	51	MC	1333	0.40	0.81	0.40
		3	52	MC	1333	0.30	0.62	0.16
		3	53	MC	1333	0.20	0.68	0.29
		3	54	CR	738	1.20	2.18	0.55
		3	62	MC	1333	0.20	0.83	0.39
		3	63	MC	1333	0.20	0.78	0.50
		3	64	MC	1333	0.40	0.68	0.39
		3	65	MC	1333	0.10	0.67	0.30
		3	66	MC	1333	0.20	0.62	0.32
		3	67	MC	1333	0.10	0.81	0.49
		3	68	MC	1333	0.10	0.65	0.39
		4	8	MC	1333	0.00	0.74	0.32
		4	9	MC	1333	0.10	0.56	0.24
		4	10	MC	1333	0.00	0.62	0.28
		4	11	MC	1333	0.00	0.65	0.38
		4	12	MC	1333	0.00	0.48	0.19
		4	13	MC	1333	0.00	0.53	0.31
		4	14	MC	1333	0.00	0.91	0.37
		4	42	MC	1333	0.30	0.78	0.29
		4	43	MC	1333	0.50	0.44	0.36
		4	44	MC	1333	0.20	0.78	0.41
		4	45	MC	1333	0.30	0.77	0.52
		4	46	MC	1333	0.40	0.67	0.41
		4	47	MC	1333	0.50	0.80	0.45

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Reading	4	48	MC	1333	0.20	0.83	0.49
		4	49	MC	1333	0.40	0.87	0.44
		4	50	MC	1333	0.40	0.81	0.50
		4	51	MC	1333	0.50	0.63	0.39
		4	52	MC	1333	0.20	0.56	0.28
		4	53	MC	1333	0.40	0.83	0.47
		4	54	CR	582	1.00	1.77	0.56
		4	62	MC	1333	0.50	0.86	0.31
		4	63	MC	1333	0.50	0.80	0.47
		4	64	MC	1333	0.50	0.90	0.38
		4	65	MC	1333	0.50	0.72	0.57
		4	66	MC	1333	0.60	0.69	0.45
		4	67	MC	1333	0.50	0.58	0.32
		4	68	MC	1333	0.50	0.75	0.40
		5	8	MC	1326	0.10	0.56	0.38
		5	9	MC	1326	0.20	0.76	0.44
		5	10	MC	1326	0.10	0.24	0.11
		5	11	MC	1326	0.20	0.70	0.46
		5	12	MC	1326	0.20	0.63	0.49
		5	13	MC	1326	0.10	0.84	0.29
		5	14	MC	1326	0.10	0.69	0.39
		5	42	MC	1326	0.30	0.27	0.11
		5	43	MC	1326	0.30	0.47	0.33
		5	44	MC	1326	0.20	0.55	0.38
		5	45	MC	1326	0.20	0.70	0.37
		5	46	MC	1326	0.40	0.84	0.28
		5	47	MC	1326	0.50	0.84	0.39
		5	48	MC	1326	0.50	0.67	0.34
		5	49	MC	1326	0.50	0.31	0.02
		5	50	MC	1326	0.40	0.74	0.52
		5	51	MC	1326	0.50	0.78	0.36
		5	52	MC	1326	0.30	0.80	0.54
		5	53	MC	1326	0.30	0.82	0.49
		5	54	CR	750	0.80	2.03	0.54
		5	62	MC	1326	0.40	0.84	0.35
		5	63	MC	1326	0.50	0.87	0.48
		5	64	MC	1326	0.40	0.83	0.50
		5	65	MC	1326	0.40	0.72	0.45
		5	66	MC	1326	0.40	0.60	0.38
		5	67	MC	1326	0.30	0.46	0.32
		5	68	MC	1326	0.40	0.81	0.53
		6	8	MC	1331	0.20	0.48	0.26
		6	9	MC	1331	0.10	0.47	0.27
		6	10	MC	1331	0.10	0.85	0.29
		6	11	MC	1331	0.20	0.57	0.23
		6	12	MC	1331	0.20	0.78	0.43
		6	13	MC	1331	0.10	0.72	0.43
		6	14	MC	1331	0.20	0.50	0.19
		6	42	MC	1331	0.10	0.68	0.42
		6	43	MC	1331	0.20	0.74	0.34

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Reading	6	44	MC	1331	0.20	0.78	0.41
		6	45	MC	1331	0.10	0.76	0.46
		6	46	MC	1331	0.20	0.67	0.38
		6	47	MC	1331	0.40	0.47	0.30
		6	48	MC	1331	0.20	0.89	0.41
		6	49	MC	1331	0.10	0.68	0.29
		6	50	MC	1331	0.20	0.78	0.33
		6	51	MC	1331	0.30	0.81	0.52
		6	52	MC	1331	0.20	0.73	0.43
		6	53	MC	1331	0.20	0.73	0.49
		6	54	CR	742	0.90	2.22	0.49
		6	62	MC	1331	0.40	0.78	0.30
		6	63	MC	1331	0.30	0.41	0.14
		6	64	MC	1331	0.30	0.90	0.43
		6	65	MC	1331	0.20	0.81	0.45
		6	66	MC	1331	0.40	0.71	0.42
		6	67	MC	1331	0.30	0.85	0.40
		6	68	MC	1331	0.20	0.76	0.45
		7	8	MC	1342	0.10	0.70	0.42
		7	9	MC	1342	0.00	0.64	0.26
		7	10	MC	1342	0.00	0.86	0.37
		7	11	MC	1342	0.00	0.65	0.51
		7	12	MC	1342	0.00	0.52	0.31
		7	13	MC	1342	0.00	0.60	0.48
		7	14	MC	1342	0.00	0.38	0.27
		7	42	MC	1342	0.10	0.40	0.19
		7	43	MC	1342	0.10	0.70	0.35
		7	44	MC	1342	0.10	0.56	0.25
		7	45	MC	1342	0.10	0.74	0.37
		7	46	MC	1342	0.10	0.73	0.31
		7	47	MC	1342	0.20	0.68	0.47
		7	48	MC	1342	0.10	0.61	0.43
		7	49	MC	1342	0.20	0.85	0.41
		7	50	MC	1342	0.20	0.34	0.00
		7	51	MC	1342	0.30	0.80	0.41
		7	52	MC	1342	0.10	0.64	0.13
		7	53	MC	1342	0.30	0.66	0.30
		7	54	CR	738	0.40	2.17	0.57
		7	62	MC	1342	0.10	0.85	0.42
		7	63	MC	1342	0.20	0.79	0.48
		7	64	MC	1342	0.10	0.68	0.33
		7	65	MC	1342	0.40	0.67	0.29
		7	66	MC	1342	0.20	0.63	0.29
		7	67	MC	1342	0.10	0.82	0.48
		7	68	MC	1342	0.10	0.63	0.42
		8	8	MC	1327	0.00	0.75	0.41
		8	9	MC	1327	0.10	0.56	0.25
		8	10	MC	1327	0.10	0.60	0.34
		8	11	MC	1327	0.00	0.65	0.35
		8	12	MC	1327	0.00	0.48	0.21

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Reading	8	13	MC	1327	0.00	0.52	0.30
		8	14	MC	1327	0.00	0.89	0.41
		8	42	MC	1327	0.10	0.78	0.25
		8	43	MC	1327	0.20	0.42	0.30
		8	44	MC	1327	0.20	0.79	0.42
		8	45	MC	1327	0.30	0.75	0.48
		8	46	MC	1327	0.30	0.65	0.37
		8	47	MC	1327	0.20	0.77	0.51
		8	48	MC	1327	0.20	0.83	0.46
		8	49	MC	1327	0.30	0.86	0.42
		8	50	MC	1327	0.20	0.78	0.54
		8	51	MC	1327	0.50	0.63	0.38
		8	52	MC	1327	0.10	0.57	0.33
		8	53	MC	1327	0.10	0.81	0.46
		8	54	CR	596	0.50	1.80	0.52
		8	62	MC	1327	0.40	0.84	0.35
		8	63	MC	1327	0.40	0.78	0.47
		8	64	MC	1327	0.40	0.89	0.44
		8	65	MC	1327	0.30	0.70	0.52
		8	66	MC	1327	0.50	0.67	0.45
		8	67	MC	1327	0.40	0.54	0.37
		8	68	MC	1327	0.30	0.75	0.42

**Table C-14. 2008-09 MONTCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Science Grade 8**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
8	Science	0	1	MC	10649	0.20	0.89	0.30
		0	2	MC	10649	0.10	0.89	0.26
		0	3	MC	10649	0.20	0.58	0.24
		0	4	MC	10649	0.10	0.49	0.30
		0	5	MC	10649	0.10	0.56	0.26
		0	8	MC	10649	0.10	0.61	0.34
		0	9	MC	10649	0.10	0.70	0.31
		0	10	MC	10649	0.20	0.46	0.30
		0	11	MC	10649	0.10	0.67	0.29
		0	15	MC	10649	0.10	0.64	0.31
		0	16	MC	10649	0.10	0.35	0.17
		0	17	MC	10649	0.10	0.72	0.42
		0	18	MC	10649	0.10	0.70	0.29
		0	19	MC	10649	0.10	0.59	0.30
		0	23	MC	10649	0.20	0.55	0.39
		0	24	MC	10649	0.20	0.80	0.46
		0	25	MC	10649	0.20	0.76	0.36
		0	26	MC	10649	0.40	0.59	0.22
		0	27	CR	10649	1.50	1.58	0.61
		0	28	MC	10649	0.20	0.89	0.37
		0	29	MC	10649	0.20	0.85	0.40
		0	30	MC	10649	0.20	0.61	0.30
		0	31	MC	10649	0.30	0.51	0.37
		0	35	MC	10649	0.20	0.64	0.40
		0	36	MC	10649	0.20	0.63	0.29
		0	37	MC	10649	0.20	0.42	0.31
		0	38	MC	10649	0.30	0.54	0.37
		0	42	MC	10649	0.20	0.92	0.34
		0	43	MC	10649	0.20	0.51	0.32
		0	44	MC	10649	0.30	0.54	0.35
		0	45	MC	10649	0.20	0.69	0.05
		0	46	MC	10649	0.30	0.64	0.40
		0	50	MC	10649	0.30	0.66	0.39
		0	51	MC	10649	0.30	0.68	0.30
		0	52	MC	10649	0.20	0.87	0.37
		0	53	MC	10649	0.30	0.44	0.35
		0	55	MC	10649	0.30	0.93	0.28
		0	56	MC	10649	0.30	0.60	0.41
		0	57	MC	10649	0.30	0.83	0.35
		0	58	MC	10649	0.30	0.79	0.30
		0	59	MC	10649	0.30	0.72	0.34
		0	62	MC	10649	0.30	0.81	0.36
		0	63	MC	10649	0.40	0.50	0.29
		0	64	MC	10649	0.30	0.26	0.24
		0	65	MC	10649	0.30	0.43	0.35
		0	69	MC	10649	0.40	0.80	0.45
		0	70	MC	10649	0.30	0.71	0.33
		0	71	MC	10649	0.40	0.50	0.26

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Science	0	72	MC	10649	0.40	0.34	0.20
		0	73	MC	10649	0.30	0.84	0.46
		0	77	MC	10649	0.40	0.62	0.27
		0	78	MC	10649	0.60	0.67	0.42
		0	79	MC	10649	0.40	0.61	0.33
		0	80	MC	10649	0.40	0.37	0.19
		0	81	CR	10649	1.90	1.05	0.52
		1	6	MC	1342	0.40	0.61	0.35
		1	7	MC	1342	0.20	0.43	0.11
		1	12	MC	1342	0.20	0.82	0.47
		1	13	MC	1342	0.10	0.76	0.43
		1	14	MC	1342	0.10	0.57	0.30
		1	20	MC	1342	0.30	0.44	0.19
		1	21	MC	1342	0.10	0.35	0.18
		1	22	MC	1342	0.10	0.51	0.38
		1	32	MC	1342	0.50	0.29	0.05
		1	33	MC	1342	0.50	0.64	0.32
		1	34	MC	1342	0.40	0.16	0.03
		1	39	MC	1342	0.60	0.49	0.42
		1	40	MC	1342	0.40	0.45	0.39
		1	41	MC	1342	0.50	0.65	0.55
		1	47	MC	1342	0.40	0.73	0.48
		1	48	MC	1342	0.40	0.30	0.10
		1	49	MC	1342	0.50	0.64	0.42
		1	54	CR	750	3.70	1.47	0.56
		1	60	MC	1342	0.30	0.58	0.43
		1	61	MC	1342	0.20	0.46	0.38
		1	66	MC	1342	0.60	0.36	0.29
		1	67	MC	1342	0.20	0.37	0.22
		1	68	MC	1342	0.40	0.49	0.24
		1	74	MC	1342	0.20	0.84	0.29
		1	75	MC	1342	0.30	0.38	0.07
		1	76	MC	1342	0.40	0.42	0.21
		2	6	MC	1304	0.10	0.47	0.12
		2	7	MC	1304	0.20	0.32	0.33
		2	12	MC	1304	0.20	0.72	0.32
		2	13	MC	1304	0.20	0.39	0.03
		2	14	MC	1304	0.10	0.39	0.18
		2	20	MC	1304	0.20	0.31	-0.04
		2	21	MC	1304	0.10	0.35	0.17
		2	22	MC	1304	0.20	0.55	0.24
		2	32	MC	1304	0.20	0.70	0.43
		2	33	MC	1304	0.20	0.67	0.31
		2	34	MC	1304	0.20	0.24	0.16
		2	39	MC	1304	0.20	0.21	0.17
		2	40	MC	1304	0.10	0.81	0.26
		2	41	MC	1304	0.20	0.50	0.35
		2	47	MC	1304	0.30	0.68	0.29
		2	48	MC	1304	0.20	0.57	0.44
		2	49	MC	1304	0.20	0.39	0.28

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Science	2	54	CR	579	2.40	1.21	0.60
		2	60	MC	1304	0.20	0.45	0.30
		2	61	MC	1304	0.20	0.51	0.24
		2	66	MC	1304	0.30	0.46	0.33
		2	67	MC	1304	0.20	0.82	0.34
		2	68	MC	1304	0.20	0.72	0.33
		2	74	MC	1304	0.20	0.67	0.45
		2	75	MC	1304	0.20	0.84	0.49
		2	76	MC	1304	0.20	0.36	0.10
		3	6	MC	1340	0.10	0.70	0.23
		3	7	MC	1340	0.30	0.89	0.16
		3	12	MC	1340	0.20	0.45	0.02
		3	13	MC	1340	0.10	0.65	0.24
		3	14	MC	1340	0.10	0.39	0.31
		3	20	MC	1340	0.10	0.61	0.34
		3	21	MC	1340	0.20	0.27	0.13
		3	22	MC	1340	0.10	0.64	0.35
		3	32	MC	1340	0.40	0.39	0.30
		3	33	MC	1340	0.30	0.32	0.21
		3	34	MC	1340	0.30	0.55	0.35
		3	39	MC	1340	0.20	0.44	0.21
		3	40	MC	1340	0.30	0.33	0.26
		3	41	MC	1340	0.30	0.52	0.35
		3	47	MC	1340	0.20	0.60	0.31
		3	48	MC	1340	0.20	0.41	0.30
		3	49	MC	1340	0.30	0.26	-0.04
		3	54	CR	578	2.40	1.40	0.55
		3	60	MC	1340	0.40	0.49	0.33
		3	61	MC	1340	0.40	0.46	0.28
		3	66	MC	1340	0.60	0.55	0.26
		3	67	MC	1340	0.60	0.65	0.47
		3	68	MC	1340	0.60	0.79	0.34
		3	74	MC	1340	0.50	0.27	0.10
		3	75	MC	1340	0.60	0.44	0.24
		3	76	MC	1340	0.50	0.53	0.27
		4	6	MC	1333	0.30	0.71	0.25
		4	7	MC	1333	0.40	0.18	0.01
		4	12	MC	1333	0.20	0.35	0.31
		4	13	MC	1333	0.20	0.66	0.40
		4	14	MC	1333	0.20	0.76	0.34
		4	20	MC	1333	0.20	0.64	0.39
		4	21	MC	1333	0.20	0.51	0.36
		4	22	MC	1333	0.20	0.78	0.41
		4	32	MC	1333	0.20	0.48	0.17
		4	33	MC	1333	0.20	0.50	0.22
		4	34	MC	1333	0.20	0.42	0.17
		4	39	MC	1333	0.50	0.39	0.24
		4	40	MC	1333	0.20	0.60	0.34
		4	41	MC	1333	0.20	0.33	0.21
		4	47	MC	1333	0.20	0.67	0.37

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Science	4	48	MC	1333	0.30	0.53	0.33
		4	49	MC	1333	0.40	0.14	-0.14
		4	54	CR	583	1.00	0.72	0.35
		4	60	MC	1333	0.50	0.71	0.42
		4	61	MC	1333	0.50	0.46	0.18
		4	66	MC	1333	0.50	0.66	0.34
		4	67	MC	1333	0.50	0.66	0.31
		4	68	MC	1333	0.50	0.40	0.21
		4	74	MC	1333	0.50	0.61	0.38
		4	75	MC	1333	0.60	0.70	0.40
		4	76	MC	1333	0.50	0.48	0.34
		5	6	MC	1323	0.00	0.63	0.37
		5	7	MC	1323	0.00	0.43	0.16
		5	12	MC	1323	0.00	0.83	0.45
		5	13	MC	1323	0.20	0.81	0.38
		5	14	MC	1323	0.00	0.59	0.30
		5	20	MC	1323	0.00	0.43	0.19
		5	21	MC	1323	0.10	0.34	0.21
		5	22	MC	1323	0.10	0.51	0.35
		5	32	MC	1323	0.40	0.30	0.12
		5	33	MC	1323	0.30	0.66	0.34
		5	34	MC	1323	0.30	0.14	0.04
		5	39	MC	1323	0.40	0.52	0.39
		5	40	MC	1323	0.30	0.46	0.35
		5	41	MC	1323	0.30	0.66	0.50
		5	47	MC	1323	0.30	0.75	0.48
		5	48	MC	1323	0.20	0.28	0.12
		5	49	MC	1323	0.30	0.62	0.38
		5	54	CR	746	2.50	1.54	0.56
		5	60	MC	1323	0.30	0.60	0.40
		5	61	MC	1323	0.30	0.48	0.38
		5	66	MC	1323	0.50	0.36	0.28
		5	67	MC	1323	0.50	0.38	0.19
		5	68	MC	1323	0.50	0.54	0.22
		5	74	MC	1323	0.40	0.84	0.30
		5	75	MC	1323	0.40	0.36	0.07
		5	76	MC	1323	0.40	0.44	0.16
		6	6	MC	1334	0.20	0.47	0.13
		6	7	MC	1334	0.10	0.28	0.34
		6	12	MC	1334	0.00	0.69	0.33
		6	13	MC	1334	0.00	0.39	0.04
		6	14	MC	1334	0.00	0.39	0.19
		6	20	MC	1334	0.00	0.32	0.03
		6	21	MC	1334	0.10	0.33	0.17
		6	22	MC	1334	0.10	0.56	0.25
		6	32	MC	1334	0.30	0.68	0.41
		6	33	MC	1334	0.30	0.68	0.35
		6	34	MC	1334	0.20	0.24	0.17
		6	39	MC	1334	0.20	0.21	0.19
		6	40	MC	1334	0.20	0.82	0.20

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Science	6	41	MC	1334	0.20	0.54	0.37
		6	47	MC	1334	0.30	0.66	0.27
		6	48	MC	1334	0.40	0.59	0.37
		6	49	MC	1334	0.30	0.37	0.22
		6	54	CR	797	1.90	1.18	0.62
		6	60	MC	1334	0.40	0.45	0.34
		6	61	MC	1334	0.50	0.52	0.20
		6	66	MC	1334	0.30	0.45	0.32
		6	67	MC	1334	0.40	0.83	0.33
		6	68	MC	1334	0.30	0.73	0.28
		6	74	MC	1334	0.40	0.65	0.47
		6	75	MC	1334	0.30	0.85	0.48
		6	76	MC	1334	0.40	0.34	0.09
		7	6	MC	1346	0.10	0.71	0.19
		7	7	MC	1346	0.10	0.89	0.21
		7	12	MC	1346	0.20	0.44	0.00
		7	13	MC	1346	0.10	0.64	0.17
		7	14	MC	1346	0.10	0.39	0.31
		7	20	MC	1346	0.20	0.60	0.35
		7	21	MC	1346	0.10	0.25	0.07
		7	22	MC	1346	0.10	0.63	0.36
		7	32	MC	1346	0.20	0.37	0.32
		7	33	MC	1346	0.20	0.35	0.15
		7	34	MC	1346	0.10	0.55	0.32
		7	39	MC	1346	0.10	0.45	0.15
		7	40	MC	1346	0.10	0.32	0.30
		7	41	MC	1346	0.10	0.52	0.31
		7	47	MC	1346	0.10	0.60	0.30
		7	48	MC	1346	0.10	0.43	0.24
		7	49	MC	1346	0.10	0.22	0.00
		7	54	CR	579	1.90	1.37	0.53
		7	60	MC	1346	0.10	0.49	0.33
		7	61	MC	1346	0.20	0.45	0.35
		7	66	MC	1346	0.40	0.53	0.29
		7	67	MC	1346	0.20	0.66	0.47
		7	68	MC	1346	0.20	0.79	0.33
		7	74	MC	1346	0.20	0.27	0.10
		7	75	MC	1346	0.30	0.41	0.25
		7	76	MC	1346	0.20	0.54	0.32
		8	6	MC	1327	0.30	0.70	0.23
		8	7	MC	1327	0.20	0.19	0.03
		8	12	MC	1327	0.20	0.36	0.29
		8	13	MC	1327	0.00	0.65	0.35
		8	14	MC	1327	0.10	0.73	0.37
		8	20	MC	1327	0.10	0.62	0.41
		8	21	MC	1327	0.00	0.48	0.38
		8	22	MC	1327	0.20	0.76	0.41
		8	32	MC	1327	0.00	0.47	0.17
		8	33	MC	1327	0.50	0.44	0.18
		8	34	MC	1327	0.20	0.40	0.18

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Science	8	39	MC	1327	0.20	0.39	0.20
		8	40	MC	1327	0.10	0.59	0.28
		8	41	MC	1327	0.10	0.31	0.16
		8	47	MC	1327	0.10	0.66	0.34
		8	48	MC	1327	0.10	0.50	0.34
		8	49	MC	1327	0.00	0.12	-0.11
		8	54	CR	579	0.70	0.74	0.33
		8	60	MC	1327	0.10	0.70	0.40
		8	61	MC	1327	0.10	0.40	0.20
		8	66	MC	1327	0.20	0.65	0.36
		8	67	MC	1327	0.10	0.62	0.35
		8	68	MC	1327	0.50	0.39	0.15
		8	74	MC	1327	0.20	0.59	0.37
		8	75	MC	1327	0.20	0.69	0.42
		8	76	MC	1327	0.20	0.46	0.33

**Table C-15. 2008-09 MONTCAS: Item-Level Classical Statistical Results
by Grade, Content Area, and Form—Mathematics Grade 10**

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
10	Mathematics	0	1	MC	10590	0.10	0.71	0.43
		0	2	MC	10590	0.10	0.70	0.20
		0	3	MC	10590	0.30	0.43	0.50
		0	4	MC	10590	0.30	0.42	0.21
		0	5	MC	10590	0.20	0.34	0.25
		0	9	MC	10590	0.30	0.48	0.42
		0	10	MC	10590	0.20	0.32	0.32
		0	11	MC	10590	0.20	0.50	0.39
		0	12	MC	10590	0.20	0.56	0.30
		0	13	MC	10590	0.20	0.66	0.43
		0	14	MC	10590	0.30	0.40	0.23
		0	15	MC	10590	0.20	0.45	0.46
		0	16	MC	10590	0.60	0.56	0.41
		0	17	MC	10590	0.70	0.63	0.28
		0	18	SA	10590	0.70	0.55	0.40
		0	19	SA	10590	1.10	0.46	0.51
		0	20	SA	10590	2.10	0.33	0.41
		0	23	CR	10590	7.30	1.59	0.69
		0	24	MC	10590	0.10	0.78	0.31
		0	25	MC	10590	0.10	0.73	0.38
		0	26	MC	10590	0.30	0.38	0.20
		0	27	MC	10590	0.20	0.49	0.34
		0	28	MC	10590	0.40	0.50	0.22
		0	29	MC	10590	0.20	0.57	0.47
		0	30	MC	10590	0.20	0.48	0.40
		0	31	MC	10590	0.20	0.57	0.35
		0	35	MC	10590	0.20	0.35	0.22
		0	36	MC	10590	0.20	0.52	0.35
		0	37	MC	10590	0.10	0.63	0.43
		0	38	MC	10590	0.20	0.30	0.30
		0	39	MC	10590	0.20	0.34	0.26
		0	40	MC	10590	0.20	0.42	0.13
		0	41	MC	10590	0.30	0.57	0.28
		0	42	MC	10590	0.40	0.53	0.28
		0	43	MC	10590	0.30	0.45	0.25
		0	44	MC	10590	0.20	0.35	0.25
		0	45	MC	10590	0.30	0.36	0.34
		0	46	MC	10590	0.30	0.54	0.37
		0	47	MC	10590	0.40	0.80	0.36
		0	49	MC	10590	0.20	0.77	0.11
		0	50	MC	10590	0.20	0.78	0.21
		0	51	MC	10590	0.20	0.33	0.46
		0	52	MC	10590	0.30	0.21	0.42
		0	53	MC	10590	0.30	0.44	0.30
		0	56	MC	10590	0.40	0.56	0.39
		0	57	MC	10590	0.30	0.62	0.26
		0	58	MC	10590	0.40	0.29	0.29
		0	60	MC	10590	0.20	0.71	0.26

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Mathematics	0	61	MC	10590	0.30	0.39	0.24
		0	62	MC	10590	0.30	0.48	0.38
		0	65	MC	10590	0.30	0.60	0.36
		0	66	MC	10590	0.40	0.33	0.21
		0	67	MC	10590	0.30	0.54	0.32
		0	68	MC	10590	0.40	0.39	0.21
		0	69	MC	10590	0.30	0.50	0.32
		0	70	MC	10590	0.30	0.47	0.45
		0	71	MC	10590	0.30	0.38	0.38
		0	72	MC	10590	0.50	0.43	0.46
		0	73	CR	10590	3.30	1.87	0.62
		1	6	MC	1327	0.50	0.24	0.25
		1	7	MC	1327	0.20	0.33	0.41
		1	8	MC	1327	0.40	0.54	0.42
		1	21	SA	1326	1.10	0.61	0.45
		1	22	CR	601	5.50	1.73	0.57
		1	32	MC	1327	0.40	0.35	0.32
		1	33	MC	1327	0.20	0.52	0.47
		1	34	MC	1327	0.10	0.29	0.18
		1	48	CR	732	6.10	0.86	0.59
		1	54	MC	1327	0.20	0.69	0.27
		1	55	MC	1327	0.20	0.77	0.41
		1	63	MC	1327	0.20	0.50	0.32
		1	64	MC	1327	0.20	0.32	0.30
		2	6	MC	1324	0.20	0.42	0.40
		2	7	MC	1324	0.10	0.84	0.37
		2	8	MC	1324	0.20	0.47	0.49
		2	21	SA	1316	3.80	0.09	0.41
		2	22	CR	575	4.30	1.75	0.52
		2	32	MC	1324	0.20	0.43	0.40
		2	33	MC	1324	0.10	0.22	0.22
		2	34	MC	1324	0.50	0.29	0.39
		2	48	CR	737	4.90	0.89	0.54
		2	54	MC	1324	0.20	0.45	0.34
		2	55	MC	1324	0.30	0.54	0.53
		2	63	MC	1324	0.30	0.31	0.16
		2	64	MC	1324	0.30	0.43	0.15
		3	6	MC	1327	0.40	0.29	0.36
		3	7	MC	1327	0.20	0.25	0.22
		3	8	MC	1327	0.00	0.52	0.38
		3	21	SA	1327	2.40	0.29	0.55
		3	22	CR	545	2.60	1.41	0.62
		3	32	MC	1327	0.20	0.20	0.30
		3	33	MC	1327	0.20	0.27	0.31
		3	34	MC	1327	0.00	0.47	0.22
		3	48	CR	600	8.80	0.52	0.58
		3	54	MC	1327	0.30	0.54	0.27
		3	55	MC	1327	0.40	0.60	0.17
		3	63	MC	1327	0.50	0.26	0.02
		3	64	MC	1327	0.20	0.63	0.28

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Mathematics	4	6	MC	1306	0.20	0.37	0.41
		4	7	MC	1306	0.20	0.66	0.42
		4	8	MC	1306	0.40	0.35	0.07
		4	21	SA	1306	2.80	0.13	0.41
		4	22	CR	557	3.20	1.35	0.60
		4	32	MC	1306	0.30	0.50	0.47
		4	33	MC	1306	0.30	0.39	0.34
		4	34	MC	1306	0.20	0.37	0.40
		4	48	CR	587	7.70	0.63	0.59
		4	54	MC	1306	0.20	0.40	0.25
		4	55	MC	1306	0.20	0.21	0.04
		4	63	MC	1306	0.20	0.11	0.24
		4	64	MC	1306	0.20	0.48	0.43
		5	6	MC	1327	0.20	0.22	0.46
		5	7	MC	1327	0.80	0.16	0.38
		5	8	MC	1327	0.40	0.37	0.30
		5	21	SA	1327	1.10	0.44	0.39
		5	22	CR	738	3.30	1.54	0.71
		5	32	MC	1327	0.30	0.19	0.36
		5	33	MC	1327	0.20	0.26	0.19
		5	34	MC	1327	0.20	0.32	0.19
		5	48	CR	740	3.90	0.61	0.58
		5	54	MC	1327	0.20	0.54	0.28
		5	55	MC	1327	0.20	0.51	0.30
		5	63	MC	1327	0.20	0.59	0.43
		5	64	MC	1327	0.30	0.38	0.44
		6	6	MC	1317	0.20	0.60	0.26
		6	7	MC	1317	0.20	0.25	0.42
		6	8	MC	1317	0.20	0.52	0.28
		6	21	SA	1315	1.30	0.07	0.35
		6	22	CR	748	3.60	1.54	0.72
		6	32	MC	1317	0.20	0.61	0.46
		6	33	MC	1317	0.20	0.35	0.35
		6	34	MC	1317	0.20	0.26	0.21
		6	48	CR	744	4.70	0.54	0.58
		6	54	MC	1317	0.30	0.26	0.28
		6	55	MC	1317	0.20	0.33	0.33
		6	63	MC	1317	0.50	0.28	0.43
		6	64	MC	1317	0.20	0.49	0.32
		7	6	MC	1333	0.50	0.48	0.33
		7	7	MC	1333	0.20	0.14	0.33
		7	8	MC	1333	0.20	0.57	0.38
		7	21	SA	1329	1.30	0.42	0.54
		7	22	CR	738	2.60	0.92	0.57
		7	32	MC	1333	0.50	0.43	0.29
		7	33	MC	1333	0.20	0.54	0.38
		7	34	MC	1333	0.20	0.20	0.30
		7	48	CR	595	3.70	1.56	0.69
		7	54	MC	1333	0.70	0.57	0.35
		7	55	MC	1333	0.50	0.41	0.20

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Mathematics	7	63	MC	1333	0.40	0.31	0.32
		7	64	MC	1333	0.50	0.21	0.10
		8	6	MC	1329	0.30	0.40	0.31
		8	7	MC	1329	0.30	0.22	0.08
		8	8	MC	1329	0.40	0.76	0.36
		8	21	SA	1328	6.90	0.22	0.55
		8	22	CR	606	5.00	0.87	0.59
		8	32	MC	1329	0.30	0.28	0.27
		8	33	MC	1329	0.30	0.36	0.27
		8	34	MC	1329	0.30	0.56	0.50
		8	48	CR	612	5.20	1.67	0.67
		8	54	MC	1329	0.20	0.55	0.27
		8	55	MC	1329	0.20	0.43	0.56
		8	63	MC	1329	0.30	0.42	0.13
		8	64	MC	1329	0.20	0.46	0.36

Table C-16. 2008-09 MONTCAS: Item-Level Classical Statistical Results by Grade, Content Area, and Form—Reading Grade 10

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
10	Reading	0	1	MC	10606	0.10	0.67	0.45
		0	2	MC	10606	0.10	0.79	0.39
		0	3	MC	10606	0.10	0.69	0.42
		0	4	MC	10606	0.20	0.69	0.42
		0	5	MC	10606	0.20	0.83	0.42
		0	6	MC	10606	0.20	0.78	0.38
		0	7	MC	10606	0.10	0.66	0.35
		0	15	MC	10606	0.20	0.81	0.53
		0	16	MC	10606	0.20	0.73	0.25
		0	17	MC	10606	0.20	0.67	0.42
		0	18	MC	10606	0.30	0.68	0.33
		0	19	MC	10606	0.20	0.78	0.35
		0	20	MC	10606	0.20	0.76	0.31
		0	21	MC	10606	0.20	0.84	0.43
		0	22	MC	10606	0.20	0.80	0.39
		0	23	MC	10606	0.20	0.90	0.46
		0	24	MC	10606	0.40	0.68	0.49
		0	25	MC	10606	0.20	0.72	0.36
		0	26	MC	10606	0.40	0.72	0.32
		0	27	CR	10606	1.40	2.09	0.58
		0	28	MC	10606	0.20	0.70	0.33
		0	29	MC	10606	0.20	0.88	0.44
		0	30	MC	10606	0.20	0.86	0.43
		0	31	MC	10606	0.20	0.88	0.40
		0	32	MC	10606	0.20	0.65	0.46
		0	33	MC	10606	0.20	0.64	0.25
		0	34	MC	10606	0.20	0.77	0.35
		0	35	MC	10606	0.20	0.74	0.34
		0	36	MC	10606	0.20	0.61	0.29
		0	37	MC	10606	0.10	0.80	0.32
		0	38	MC	10606	0.20	0.61	0.39
		0	39	MC	10606	0.20	0.76	0.40
		0	40	MC	10606	0.20	0.58	0.26
		0	41	MC	10606	0.20	0.74	0.32
		0	55	MC	10606	0.30	0.73	0.29
		0	56	MC	10606	0.30	0.78	0.31
		0	57	MC	10606	0.30	0.76	0.36
		0	58	MC	10606	0.30	0.82	0.34
		0	59	MC	10606	0.30	0.76	0.44
		0	60	MC	10606	0.40	0.51	0.30
		0	61	MC	10606	0.30	0.71	0.31
		0	69	MC	10606	0.40	0.73	0.36
		0	70	MC	10606	0.30	0.79	0.49
		0	71	MC	10606	0.30	0.75	0.45
		0	72	MC	10606	0.30	0.64	0.45
		0	73	MC	10606	0.30	0.48	0.34
		0	74	MC	10606	0.30	0.77	0.48
		0	75	MC	10606	0.30	0.76	0.43

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Reading	0	76	MC	10606	0.40	0.50	0.27
		0	77	MC	10606	0.40	0.81	0.54
		0	78	MC	10606	0.50	0.78	0.43
		0	79	MC	10606	0.30	0.58	0.21
		0	80	MC	10606	0.40	0.87	0.45
		0	81	CR	10606	2.70	1.64	0.56
		1	8	MC	1324	0.20	0.79	0.45
		1	9	MC	1324	0.20	0.72	0.37
		1	10	MC	1324	0.20	0.63	0.39
		1	11	MC	1324	0.20	0.68	0.26
		1	12	MC	1324	0.30	0.60	0.25
		1	13	MC	1324	0.20	0.69	0.26
		1	14	MC	1324	0.20	0.46	0.18
		1	42	MC	1324	0.10	0.69	0.27
		1	43	MC	1324	0.10	0.64	0.39
		1	44	MC	1324	0.20	0.74	0.37
		1	45	MC	1324	0.30	0.71	0.44
		1	46	MC	1324	0.10	0.44	0.30
		1	47	MC	1324	0.10	0.77	0.37
		1	48	MC	1324	0.20	0.62	0.40
		1	49	MC	1324	0.20	0.83	0.42
		1	50	MC	1324	0.40	0.80	0.42
		1	51	MC	1324	0.30	0.82	0.43
		1	52	MC	1324	0.20	0.79	0.42
		1	53	MC	1324	0.20	0.89	0.47
		1	54	CR	725	0.70	2.28	0.57
		1	62	MC	1324	0.30	0.77	0.34
		1	63	MC	1324	0.30	0.48	-0.02
		1	64	MC	1324	0.40	0.68	0.46
		1	65	MC	1324	0.20	0.79	0.39
		1	66	MC	1324	0.20	0.80	0.45
		1	67	MC	1324	0.30	0.76	0.38
		1	68	MC	1324	0.20	0.48	0.17
		2	8	MC	1326	0.20	0.21	0.03
		2	9	MC	1326	0.10	0.86	0.42
		2	10	MC	1326	0.10	0.76	0.36
		2	11	MC	1326	0.10	0.77	0.37
		2	12	MC	1326	0.20	0.62	0.30
		2	13	MC	1326	0.10	0.88	0.38
		2	14	MC	1326	0.10	0.42	0.32
		2	42	MC	1326	0.40	0.42	0.37
		2	43	MC	1326	0.20	0.65	0.25
		2	44	MC	1326	0.50	0.89	0.39
		2	45	MC	1326	0.20	0.92	0.43
		2	46	MC	1326	0.30	0.86	0.44
		2	47	MC	1326	0.40	0.41	0.16
		2	48	MC	1326	0.30	0.73	0.48
		2	49	MC	1326	0.40	0.70	0.28
		2	50	MC	1326	0.20	0.40	0.02
		2	51	MC	1326	0.40	0.61	0.47

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Reading	2	52	MC	1326	0.40	0.82	0.34
		2	53	MC	1326	0.50	0.55	0.22
		2	54	CR	571	2.50	2.09	0.52
		2	62	MC	1326	0.40	0.85	0.45
		2	63	MC	1326	0.50	0.73	0.37
		2	64	MC	1326	0.40	0.48	0.37
		2	65	MC	1326	0.40	0.81	0.43
		2	66	MC	1326	0.30	0.83	0.50
		2	67	MC	1326	0.30	0.78	0.49
		2	68	MC	1326	0.40	0.77	0.16
		3	8	MC	1332	0.10	0.82	0.35
		3	9	MC	1332	0.00	0.67	0.33
		3	10	MC	1332	0.10	0.68	0.25
		3	11	MC	1332	0.10	0.64	0.32
		3	12	MC	1332	0.00	0.81	0.38
		3	13	MC	1332	0.10	0.69	0.25
		3	14	MC	1332	0.00	0.83	0.25
		3	42	MC	1332	0.20	0.82	0.43
		3	43	MC	1332	0.20	0.60	0.39
		3	44	MC	1332	0.50	0.67	0.46
		3	45	MC	1332	0.20	0.44	0.36
		3	46	MC	1332	0.30	0.88	0.44
		3	47	MC	1332	0.20	0.87	0.44
		3	48	MC	1332	0.30	0.70	0.36
		3	49	MC	1332	0.20	0.77	0.35
		3	50	MC	1332	0.20	0.84	0.49
		3	51	MC	1332	0.20	0.77	0.40
		3	52	MC	1332	0.20	0.80	0.45
		3	53	MC	1332	0.30	0.81	0.40
		3	54	CR	572	2.40	1.87	0.59
		3	62	MC	1332	0.40	0.79	0.35
		3	63	MC	1332	0.50	0.82	0.44
		3	64	MC	1332	0.50	0.55	0.16
		3	65	MC	1332	0.30	0.28	0.14
		3	66	MC	1332	0.40	0.70	0.34
		3	67	MC	1332	0.50	0.73	0.33
		3	68	MC	1332	0.20	0.89	0.41
		4	8	MC	1308	0.20	0.87	0.36
		4	9	MC	1308	0.20	0.80	0.46
		4	10	MC	1308	0.20	0.83	0.33
		4	11	MC	1308	0.20	0.93	0.34
		4	12	MC	1308	0.20	0.73	0.43
		4	13	MC	1308	0.30	0.72	0.46
		4	14	MC	1308	0.50	0.65	0.31
		4	42	MC	1308	0.20	0.82	0.39
		4	43	MC	1308	0.20	0.73	0.32
		4	44	MC	1308	0.20	0.86	0.44
		4	45	MC	1308	0.20	0.81	0.44
		4	46	MC	1308	0.30	0.22	0.12
		4	47	MC	1308	0.20	0.58	0.45

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Reading	4	48	MC	1308	0.20	0.72	0.44
		4	49	MC	1308	0.20	0.88	0.53
		4	50	MC	1308	0.20	0.76	0.44
		4	51	MC	1308	0.40	0.49	0.34
		4	52	MC	1308	0.20	0.86	0.32
		4	53	MC	1308	0.30	0.58	0.21
		4	54	CR	598	2.80	1.88	0.59
		4	62	MC	1308	0.20	0.32	0.14
		4	63	MC	1308	0.20	0.80	0.33
		4	64	MC	1308	0.20	0.87	0.46
		4	65	MC	1308	0.20	0.59	0.22
		4	66	MC	1308	0.20	0.76	0.38
		4	67	MC	1308	0.20	0.90	0.37
		4	68	MC	1308	0.20	0.67	0.43
		5	8	MC	1332	0.20	0.77	0.43
		5	9	MC	1332	0.20	0.75	0.38
		5	10	MC	1332	0.20	0.64	0.38
		5	11	MC	1332	0.20	0.69	0.28
		5	12	MC	1332	0.50	0.56	0.33
		5	13	MC	1332	0.20	0.69	0.20
		5	14	MC	1332	0.20	0.44	0.21
		5	42	MC	1332	0.60	0.67	0.29
		5	43	MC	1332	0.80	0.63	0.35
		5	44	MC	1332	0.60	0.74	0.35
		5	45	MC	1332	0.50	0.69	0.44
		5	46	MC	1332	0.50	0.39	0.30
		5	47	MC	1332	0.60	0.79	0.37
		5	48	MC	1332	0.50	0.60	0.39
		5	49	MC	1332	0.50	0.80	0.42
		5	50	MC	1332	0.60	0.80	0.42
		5	51	MC	1332	1.00	0.81	0.42
		5	52	MC	1332	0.50	0.80	0.40
		5	53	MC	1332	0.50	0.88	0.50
		5	54	CR	580	1.70	1.96	0.61
		5	62	MC	1332	0.50	0.77	0.34
		5	63	MC	1332	0.50	0.47	0.04
		5	64	MC	1332	0.50	0.67	0.49
		5	65	MC	1332	0.50	0.77	0.40
		5	66	MC	1332	0.50	0.80	0.48
		5	67	MC	1332	0.50	0.76	0.38
		5	68	MC	1332	0.50	0.47	0.20
		6	8	MC	1320	0.10	0.19	0.02
		6	9	MC	1320	0.10	0.85	0.42
		6	10	MC	1320	0.10	0.75	0.46
		6	11	MC	1320	0.10	0.77	0.36
		6	12	MC	1320	0.20	0.63	0.36
		6	13	MC	1320	0.10	0.87	0.48
		6	14	MC	1320	0.10	0.41	0.32
		6	42	MC	1320	0.20	0.42	0.32
		6	43	MC	1320	0.10	0.64	0.32

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Reading	6	44	MC	1320	0.10	0.87	0.53
		6	45	MC	1320	0.20	0.91	0.45
		6	46	MC	1320	0.10	0.87	0.48
		6	47	MC	1320	0.10	0.39	0.19
		6	48	MC	1320	0.20	0.72	0.49
		6	49	MC	1320	0.20	0.68	0.27
		6	50	MC	1320	0.20	0.42	0.07
		6	51	MC	1320	0.40	0.63	0.42
		6	52	MC	1320	0.40	0.83	0.43
		6	53	MC	1320	0.50	0.56	0.23
		6	54	CR	641	2.80	2.10	0.57
		6	62	MC	1320	0.30	0.85	0.39
		6	63	MC	1320	0.20	0.70	0.40
		6	64	MC	1320	0.40	0.47	0.37
		6	65	MC	1320	0.20	0.78	0.49
		6	66	MC	1320	0.30	0.80	0.52
		6	67	MC	1320	0.20	0.77	0.48
		6	68	MC	1320	0.30	0.76	0.18
		7	8	MC	1335	0.10	0.81	0.37
		7	9	MC	1335	0.10	0.67	0.33
		7	10	MC	1335	0.20	0.66	0.25
		7	11	MC	1335	0.10	0.67	0.28
		7	12	MC	1335	0.30	0.79	0.43
		7	13	MC	1335	0.10	0.67	0.28
		7	14	MC	1335	0.10	0.82	0.33
		7	42	MC	1335	0.20	0.82	0.44
		7	43	MC	1335	0.20	0.60	0.43
		7	44	MC	1335	0.20	0.62	0.43
		7	45	MC	1335	0.40	0.42	0.34
		7	46	MC	1335	0.10	0.88	0.38
		7	47	MC	1335	0.10	0.86	0.46
		7	48	MC	1335	0.20	0.68	0.36
		7	49	MC	1335	0.20	0.76	0.41
		7	50	MC	1335	0.20	0.83	0.47
		7	51	MC	1335	0.40	0.76	0.42
		7	52	MC	1335	0.30	0.82	0.45
		7	53	MC	1335	0.20	0.81	0.42
		7	54	CR	599	3.50	1.84	0.57
		7	62	MC	1335	0.40	0.77	0.41
		7	63	MC	1335	0.40	0.82	0.50
		7	64	MC	1335	0.40	0.54	0.23
		7	65	MC	1335	0.40	0.27	0.15
		7	66	MC	1335	0.60	0.67	0.37
		7	67	MC	1335	0.40	0.73	0.39
		7	68	MC	1335	0.40	0.87	0.45
		8	8	MC	1328	0.20	0.87	0.31
		8	9	MC	1328	0.20	0.78	0.48
		8	10	MC	1328	0.20	0.82	0.33
		8	11	MC	1328	0.20	0.93	0.35
		8	12	MC	1328	0.20	0.76	0.40

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Reading	8	13	MC	1328	0.20	0.72	0.41
		8	14	MC	1328	0.20	0.65	0.27
		8	42	MC	1328	0.00	0.83	0.40
		8	43	MC	1328	0.00	0.75	0.31
		8	44	MC	1328	0.00	0.86	0.44
		8	45	MC	1328	0.10	0.82	0.47
		8	46	MC	1328	0.10	0.21	0.07
		8	47	MC	1328	0.10	0.60	0.46
		8	48	MC	1328	0.10	0.69	0.45
		8	49	MC	1328	0.20	0.88	0.47
		8	50	MC	1328	0.20	0.77	0.42
		8	51	MC	1328	0.30	0.52	0.25
		8	52	MC	1328	0.10	0.86	0.42
		8	53	MC	1328	0.10	0.58	0.23
		8	54	CR	626	2.90	1.85	0.58
		8	62	MC	1328	0.00	0.33	0.09
		8	63	MC	1328	0.00	0.80	0.38
		8	64	MC	1328	0.00	0.87	0.41
		8	65	MC	1328	0.00	0.64	0.20
		8	66	MC	1328	0.00	0.77	0.39
		8	67	MC	1328	0.00	0.90	0.36
		8	68	MC	1328	0.00	0.70	0.41

Table C-17. 2008-09 MONTCAS: Item-Level Classical Statistical Results by Grade, Content Area, and Form—Science Grade 11

Grade	Content Area	Form	Position	Item Type	N	Omit Rate	Difficulty	Discrimination
10	Science	0	1	MC	10621	0.10	0.77	0.42
		0	2	MC	10621	0.10	0.70	0.40
		0	3	MC	10621	0.20	0.72	0.34
		0	4	MC	10621	0.20	0.64	0.36
		0	5	MC	10621	0.10	0.86	0.26
		0	8	MC	10621	0.20	0.72	0.29
		0	9	MC	10621	0.20	0.44	0.34
		0	10	MC	10621	0.20	0.60	0.39
		0	11	MC	10621	0.20	0.60	0.34
		0	15	MC	10621	0.10	0.78	0.39
		0	16	MC	10621	0.20	0.74	0.25
		0	17	MC	10621	0.10	0.52	0.27
		0	18	MC	10621	0.20	0.48	0.35
		0	19	MC	10621	0.20	0.62	0.47
		0	23	MC	10621	0.20	0.39	0.27
		0	24	MC	10621	0.30	0.50	0.41
		0	25	MC	10621	0.10	0.80	0.35
		0	26	MC	10621	0.30	0.59	0.33
		0	27	CR	10621	2.30	2.14	0.49
		0	28	MC	10621	0.20	0.82	0.34
		0	29	MC	10621	0.10	0.35	0.34
		0	30	MC	10621	0.10	0.76	0.42
		0	31	MC	10621	0.20	0.82	0.41
		0	35	MC	10621	0.10	0.83	0.33
		0	36	MC	10621	0.20	0.49	0.36
		0	37	MC	10621	0.20	0.42	0.17
		0	38	MC	10621	0.20	0.54	0.44
		0	42	MC	10621	0.20	0.41	0.32
		0	43	MC	10621	0.20	0.68	0.37
		0	44	MC	10621	0.20	0.48	0.28
		0	45	MC	10621	0.20	0.67	0.42
		0	46	MC	10621	0.20	0.60	0.36
		0	50	MC	10621	0.20	0.63	0.41
		0	51	MC	10621	0.30	0.63	0.52
		0	52	MC	10621	0.20	0.37	0.34
		0	53	MC	10621	0.50	0.75	0.47
		0	55	MC	10621	0.20	0.88	0.32
		0	56	MC	10621	0.20	0.76	0.47
		0	57	MC	10621	0.20	0.35	0.29
		0	58	MC	10621	0.20	0.41	0.32
		0	59	MC	10621	0.30	0.40	0.28
		0	62	MC	10621	0.20	0.49	0.30
		0	63	MC	10621	0.30	0.65	0.42
		0	64	MC	10621	0.30	0.39	0.32
		0	65	MC	10621	0.30	0.41	0.25
		0	69	MC	10621	0.30	0.61	0.46
		0	70	MC	10621	0.30	0.53	0.33
		0	71	MC	10621	0.30	0.28	0.26

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Science	0	72	MC	10621	0.30	0.72	0.49
		0	73	MC	10621	0.30	0.54	0.39
		0	77	MC	10621	0.30	0.76	0.45
		0	78	MC	10621	0.40	0.28	0.31
		0	79	MC	10621	0.30	0.73	0.45
		0	80	MC	10621	0.30	0.73	0.37
		0	81	CR	10621	3.10	1.15	0.51
		1	6	MC	1339	0.10	0.63	0.32
		1	7	MC	1339	0.00	0.41	0.17
		1	12	MC	1339	0.00	0.52	0.40
		1	13	MC	1339	0.00	0.54	0.35
		1	14	MC	1339	0.00	0.16	-0.15
		1	20	MC	1339	0.10	0.59	0.37
		1	21	MC	1339	0.20	0.71	0.35
		1	22	MC	1339	0.20	0.35	0.13
		1	32	MC	1339	0.10	0.56	0.29
		1	33	MC	1339	0.10	0.60	0.28
		1	34	MC	1339	0.00	0.52	0.27
		1	39	MC	1339	0.10	0.46	0.21
		1	40	MC	1339	0.00	0.57	0.22
		1	41	MC	1339	0.10	0.31	0.18
		1	47	MC	1339	0.00	0.48	0.32
		1	48	MC	1339	0.10	0.40	0.27
		1	49	MC	1339	0.00	0.70	0.19
		1	54	CR	651	2.60	1.93	0.57
		1	60	MC	1339	0.00	0.71	0.39
		1	61	MC	1339	0.00	0.50	0.19
		1	66	MC	1339	0.30	0.65	0.51
		1	67	MC	1339	0.10	0.36	0.18
		1	68	MC	1339	0.10	0.63	0.26
		1	74	MC	1339	0.00	0.64	0.40
		1	75	MC	1339	0.00	0.59	0.20
		1	76	MC	1339	0.00	0.75	0.28
		2	6	MC	1326	0.20	0.75	0.31
		2	7	MC	1326	0.00	0.61	0.20
		2	12	MC	1326	0.00	0.61	0.42
		2	13	MC	1326	0.00	0.36	0.23
		2	14	MC	1326	0.10	0.41	0.13
		2	20	MC	1326	0.20	0.54	0.20
		2	21	MC	1326	0.20	0.62	0.30
		2	22	MC	1326	0.20	0.68	0.44
		2	32	MC	1326	0.20	0.82	0.46
		2	33	MC	1326	0.20	0.83	0.44
		2	34	MC	1326	0.20	0.29	0.27
		2	39	MC	1326	0.20	0.34	0.20
		2	40	MC	1326	0.10	0.56	0.32
		2	41	MC	1326	0.20	0.46	0.17
		2	47	MC	1326	0.10	0.46	0.28
		2	48	MC	1326	0.20	0.67	0.33
		2	49	MC	1326	0.20	0.70	0.28

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Science	2	54	CR	624	6.60	1.61	0.58
		2	60	MC	1326	0.10	0.70	0.41
		2	61	MC	1326	0.20	0.49	0.33
		2	66	MC	1326	0.20	0.65	0.42
		2	67	MC	1326	0.20	0.49	0.23
		2	68	MC	1326	0.20	0.51	0.18
		2	74	MC	1326	0.20	0.32	0.28
		2	75	MC	1326	0.10	0.52	0.39
		2	76	MC	1326	0.10	0.13	0.09
		3	6	MC	1337	0.30	0.48	0.27
		3	7	MC	1337	0.10	0.39	0.23
		3	12	MC	1337	0.10	0.29	0.18
		3	13	MC	1337	0.10	0.51	0.40
		3	14	MC	1337	0.20	0.55	0.16
		3	20	MC	1337	0.10	0.49	0.40
		3	21	MC	1337	0.10	0.78	0.43
		3	22	MC	1337	0.10	0.49	0.12
		3	32	MC	1337	0.20	0.66	0.33
		3	33	MC	1337	0.30	0.34	0.22
		3	34	MC	1337	0.10	0.46	0.44
		3	39	MC	1337	0.10	0.68	0.36
		3	40	MC	1337	0.20	0.92	0.42
		3	41	MC	1337	0.10	0.49	0.19
		3	47	MC	1337	0.20	0.27	0.21
		3	48	MC	1337	0.10	0.35	0.23
		3	49	MC	1337	0.10	0.45	0.15
		3	54	CR	574	3.30	0.95	0.52
		3	60	MC	1337	0.50	0.36	0.31
		3	61	MC	1337	0.20	0.65	0.37
		3	66	MC	1337	0.30	0.58	0.41
		3	67	MC	1337	0.10	0.58	0.34
		3	68	MC	1337	0.20	0.39	0.28
		3	74	MC	1337	0.20	0.35	0.29
		3	75	MC	1337	0.20	0.66	0.49
		3	76	MC	1337	0.20	0.35	0.22
		4	6	MC	1307	0.40	0.63	0.30
		4	7	MC	1307	0.10	0.41	0.17
		4	12	MC	1307	0.20	0.34	0.18
		4	13	MC	1307	0.20	0.48	0.43
		4	14	MC	1307	0.10	0.43	0.22
		4	20	MC	1307	0.20	0.62	0.31
		4	21	MC	1307	0.10	0.41	0.22
		4	22	MC	1307	0.20	0.78	0.37
		4	32	MC	1307	0.30	0.58	0.30
		4	33	MC	1307	0.30	0.55	0.14
		4	34	MC	1307	0.20	0.82	0.35
		4	39	MC	1307	0.20	0.85	0.38
		4	40	MC	1307	0.20	0.82	0.30
		4	41	MC	1307	0.20	0.76	0.44
		4	47	MC	1307	0.20	0.15	-0.03

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Science	4	48	MC	1307	0.20	0.12	-0.16
		4	49	MC	1307	0.20	0.74	0.48
		4	54	CR	567	5.10	0.88	0.47
		4	60	MC	1307	0.30	0.23	0.01
		4	61	MC	1307	0.30	0.40	0.18
		4	66	MC	1307	0.60	0.57	0.39
		4	67	MC	1307	0.30	0.48	0.42
		4	68	MC	1307	0.30	0.22	0.01
		4	74	MC	1307	0.30	0.78	0.50
		4	75	MC	1307	0.40	0.50	0.39
		4	76	MC	1307	0.20	0.75	0.35
		5	6	MC	1329	0.30	0.65	0.31
		5	7	MC	1329	0.20	0.39	0.14
		5	12	MC	1329	0.30	0.53	0.38
		5	13	MC	1329	0.20	0.54	0.33
		5	14	MC	1329	0.20	0.15	-0.13
		5	20	MC	1329	0.30	0.61	0.32
		5	21	MC	1329	0.20	0.72	0.37
		5	22	MC	1329	0.30	0.33	0.19
		5	32	MC	1329	0.20	0.62	0.28
		5	33	MC	1329	0.20	0.56	0.33
		5	34	MC	1329	0.20	0.50	0.30
		5	39	MC	1329	0.30	0.45	0.23
		5	40	MC	1329	0.20	0.56	0.24
		5	41	MC	1329	0.20	0.29	0.12
		5	47	MC	1329	0.20	0.49	0.25
		5	48	MC	1329	0.50	0.39	0.25
		5	49	MC	1329	0.20	0.69	0.22
		5	54	CR	574	3.10	2.07	0.60
		5	60	MC	1329	0.50	0.72	0.41
		5	61	MC	1329	0.30	0.48	0.18
		5	66	MC	1329	0.80	0.65	0.50
		5	67	MC	1329	0.30	0.36	0.15
		5	68	MC	1329	0.30	0.67	0.29
		5	74	MC	1329	0.40	0.64	0.39
		5	75	MC	1329	0.40	0.58	0.24
		5	76	MC	1329	0.40	0.77	0.25
		6	6	MC	1319	0.20	0.75	0.32
		6	7	MC	1319	0.20	0.61	0.26
		6	12	MC	1319	0.20	0.62	0.47
		6	13	MC	1319	0.10	0.35	0.21
		6	14	MC	1319	0.10	0.41	0.21
		6	20	MC	1319	0.20	0.55	0.32
		6	21	MC	1319	0.20	0.64	0.32
		6	22	MC	1319	0.30	0.71	0.48
		6	32	MC	1319	0.50	0.81	0.45
		6	33	MC	1319	0.40	0.80	0.50
		6	34	MC	1319	0.20	0.28	0.27
		6	39	MC	1319	0.40	0.36	0.21
		6	40	MC	1319	0.30	0.55	0.38

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Science	6	41	MC	1319	0.60	0.45	0.18
		6	47	MC	1319	0.30	0.46	0.27
		6	48	MC	1319	0.30	0.65	0.38
		6	49	MC	1319	0.20	0.68	0.32
		6	54	CR	572	7.20	1.62	0.57
		6	60	MC	1319	0.50	0.70	0.47
		6	61	MC	1319	0.50	0.50	0.31
		6	66	MC	1319	0.40	0.66	0.41
		6	67	MC	1319	0.50	0.48	0.24
		6	68	MC	1319	0.60	0.50	0.22
		6	74	MC	1319	0.60	0.32	0.30
		6	75	MC	1319	0.50	0.54	0.45
		6	76	MC	1319	0.60	0.15	0.02
		7	6	MC	1336	0.50	0.49	0.31
		7	7	MC	1336	0.20	0.39	0.23
		7	12	MC	1336	0.40	0.29	0.10
		7	13	MC	1336	0.20	0.52	0.39
		7	14	MC	1336	0.20	0.53	0.19
		7	20	MC	1336	0.30	0.48	0.39
		7	21	MC	1336	0.20	0.75	0.46
		7	22	MC	1336	0.20	0.47	0.16
		7	32	MC	1336	0.20	0.66	0.33
		7	33	MC	1336	0.30	0.34	0.20
		7	34	MC	1336	0.20	0.45	0.49
		7	39	MC	1336	0.20	0.66	0.37
		7	40	MC	1336	0.20	0.87	0.49
		7	41	MC	1336	0.20	0.44	0.16
		7	47	MC	1336	0.20	0.25	0.22
		7	48	MC	1336	0.40	0.33	0.20
		7	49	MC	1336	0.30	0.42	0.17
		7	54	CR	575	3.70	0.95	0.57
		7	60	MC	1336	0.30	0.33	0.33
		7	61	MC	1336	0.40	0.62	0.38
		7	66	MC	1336	0.40	0.58	0.41
		7	67	MC	1336	0.40	0.55	0.36
		7	68	MC	1336	0.40	0.38	0.23
		7	74	MC	1336	0.50	0.35	0.23
		7	75	MC	1336	0.40	0.65	0.51
		7	76	MC	1336	0.40	0.31	0.15
		8	6	MC	1328	0.20	0.65	0.34
		8	7	MC	1328	0.10	0.41	0.17
		8	12	MC	1328	0.20	0.34	0.16
		8	13	MC	1328	0.20	0.46	0.43
		8	14	MC	1328	0.10	0.44	0.14
		8	20	MC	1328	0.20	0.64	0.28
		8	21	MC	1328	0.10	0.40	0.18
		8	22	MC	1328	0.10	0.77	0.37
		8	32	MC	1328	0.20	0.56	0.34
		8	33	MC	1328	0.20	0.56	0.16
		8	34	MC	1328	0.20	0.82	0.30

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Position</i>	<i>Item Type</i>	<i>N</i>	<i>Omit Rate</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Science	8	39	MC	1328	0.20	0.84	0.40
		8	40	MC	1328	0.20	0.81	0.32
		8	41	MC	1328	0.10	0.76	0.46
		8	47	MC	1328	0.10	0.16	0.00
		8	48	MC	1328	0.20	0.13	-0.19
		8	49	MC	1328	0.20	0.75	0.52
		8	54	CR	574	7.10	0.85	0.50
		8	60	MC	1328	0.40	0.21	-0.01
		8	61	MC	1328	0.20	0.36	0.20
		8	66	MC	1328	0.20	0.55	0.41
		8	67	MC	1328	0.10	0.49	0.38
		8	68	MC	1328	0.10	0.22	0.05
		8	74	MC	1328	0.20	0.79	0.49
		8	75	MC	1328	0.10	0.47	0.38
		8	76	MC	1328	0.20	0.72	0.31

Appendix D—ITEM DIFFICULTY AND DISCRIMINATION INDICES BY GRADE, CONTENT AREA, TEST FORM AND ITEM TYPE

**Table D-1. 2008-09 MontCAS: Common Item
Difficulty and Discrimination Indices by Grade and Content Area**

Grade	Content Area	Form	N	Difficulty		Discrimination	
				Mean	SD	Mean	SD
3	Mathematics	00	60	0.69	0.14	0.37	0.09
	Reading	00	54	0.67	0.14	0.37	0.08
4	Mathematics	00	60	0.65	0.15	0.37	0.08
	Reading	00	54	0.67	0.12	0.38	0.07
	Science	00	55	0.69	0.13	0.30	0.08
5	Mathematics	00	60	0.61	0.15	0.38	0.09
	Reading	00	54	0.71	0.12	0.39	0.06
6	Mathematics	00	60	0.59	0.15	0.39	0.09
	Reading	00	54	0.70	0.13	0.39	0.07
7	Mathematics	00	60	0.57	0.16	0.38	0.07
	Reading	00	54	0.72	0.12	0.41	0.07
8	Mathematics	00	60	0.57	0.17	0.37	0.12
	Reading	00	54	0.73	0.10	0.41	0.07
	Science	00	55	0.63	0.17	0.33	0.09
10	Mathematics	00	59	0.50	0.14	0.34	0.11
	Reading	00	54	0.72	0.11	0.39	0.08
	Science	00	55	0.59	0.17	0.36	0.08

Table D-2. 2008-09: MontCAS: Item Difficulty and Discrimination Descriptive Statistics by Grade and Content Area and Form

Grade	Content Area	Form	Statistic	Difficulty	Discrimination
3	Mathematics	0	Mean	0.69	0.37
			StDev	0.14	0.09
			Min	0.37	0.18
			Max	0.95	0.61
			Range	0.58	0.43
		1	Mean	0.69	0.37
			StDev	0.14	0.09
			Min	0.37	0.18
			Max	0.95	0.61
			Range	0.58	0.43
		2	Mean	0.69	0.37
			StDev	0.14	0.09
			Min	0.37	0.18
			Max	0.95	0.61
			Range	0.58	0.43
		3	Mean	0.69	0.37
			StDev	0.14	0.09
			Min	0.37	0.18
			Max	0.95	0.61
			Range	0.58	0.43
		4	Mean	0.69	0.37
			StDev	0.14	0.09
			Min	0.37	0.18
			Max	0.95	0.61
			Range	0.58	0.43
		5	Mean	0.69	0.37
			StDev	0.14	0.09
			Min	0.37	0.18
			Max	0.95	0.61
			Range	0.58	0.43
		6	Mean	0.69	0.37
			StDev	0.14	0.09
			Min	0.37	0.18
			Max	0.95	0.61
			Range	0.58	0.43
		7	Mean	0.69	0.37
			StDev	0.14	0.09
			Min	0.37	0.18
			Max	0.95	0.61
			Range	0.58	0.43
		8	Mean	0.69	0.37
			StDev	0.14	0.09
			Min	0.37	0.18
			Max	0.95	0.61
			Range	0.58	0.43

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
3	Reading	0	Mean	0.67	0.37
			StDev	0.14	0.08
			Min	0.33	0.22
			Max	0.87	0.54
			Range	0.54	0.32
		1	Mean	0.67	0.37
			StDev	0.14	0.08
			Min	0.33	0.22
			Max	0.87	0.54
			Range	0.54	0.32
		2	Mean	0.67	0.37
			StDev	0.14	0.08
			Min	0.33	0.22
			Max	0.87	0.54
			Range	0.54	0.32
		3	Mean	0.67	0.37
			StDev	0.14	0.08
			Min	0.33	0.22
			Max	0.87	0.54
			Range	0.54	0.32
		4	Mean	0.67	0.37
			StDev	0.14	0.08
			Min	0.33	0.22
			Max	0.87	0.54
			Range	0.54	0.32
		5	Mean	0.67	0.37
			StDev	0.14	0.08
			Min	0.33	0.22
			Max	0.87	0.54
			Range	0.54	0.32
		6	Mean	0.67	0.37
			StDev	0.14	0.08
			Min	0.33	0.22
			Max	0.87	0.54
			Range	0.54	0.32
		7	Mean	0.67	0.37
			StDev	0.14	0.08
			Min	0.33	0.22
			Max	0.87	0.54
			Range	0.54	0.32
		8	Mean	0.67	0.37
			StDev	0.14	0.08
			Min	0.33	0.22
			Max	0.87	0.54
			Range	0.54	0.32

Table D-3. 2008-09: MontCAS: Item Difficulty and Discrimination Descriptive Statistics by Grade and Content Area and Form

Grade	Content Area	Form	Statistic	Difficulty	Discrimination
4	Mathematics	0	Mean	0.65	0.37
			StDev	0.15	0.08
			Min	0.28	0.20
			Max	0.93	0.59
			Range	0.65	0.39
		1	Mean	0.65	0.37
			StDev	0.15	0.08
			Min	0.28	0.20
			Max	0.93	0.59
			Range	0.65	0.39
		2	Mean	0.65	0.37
			StDev	0.15	0.08
			Min	0.28	0.20
			Max	0.93	0.59
			Range	0.65	0.39
		3	Mean	0.65	0.37
			StDev	0.15	0.08
			Min	0.28	0.20
			Max	0.93	0.59
			Range	0.65	0.39
		4	Mean	0.65	0.37
			StDev	0.15	0.08
			Min	0.28	0.20
			Max	0.93	0.59
			Range	0.65	0.39
		5	Mean	0.65	0.37
			StDev	0.15	0.08
			Min	0.28	0.20
			Max	0.93	0.59
			Range	0.65	0.39
		6	Mean	0.65	0.37
			StDev	0.15	0.08
			Min	0.28	0.20
			Max	0.93	0.59
			Range	0.65	0.39
		7	Mean	0.65	0.37
			StDev	0.15	0.08
			Min	0.28	0.20
			Max	0.93	0.59
			Range	0.65	0.39
		8	Mean	0.65	0.37
			StDev	0.15	0.08
			Min	0.28	0.20
			Max	0.93	0.59
			Range	0.65	0.39

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Reading	0	Mean	0.67	0.38
			StDev	0.12	0.07
			Min	0.41	0.22
			Max	0.90	0.52
			Range	0.49	0.30
		1	Mean	0.67	0.38
			StDev	0.12	0.07
			Min	0.41	0.22
			Max	0.90	0.52
			Range	0.49	0.30
		2	Mean	0.67	0.38
			StDev	0.12	0.07
			Min	0.41	0.22
			Max	0.90	0.52
			Range	0.49	0.30
		3	Mean	0.67	0.38
			StDev	0.12	0.07
			Min	0.41	0.22
			Max	0.90	0.52
			Range	0.49	0.30
		4	Mean	0.67	0.38
			StDev	0.12	0.07
			Min	0.41	0.22
			Max	0.90	0.52
			Range	0.49	0.30
		5	Mean	0.67	0.38
			StDev	0.12	0.07
			Min	0.41	0.22
			Max	0.90	0.52
			Range	0.49	0.30
		6	Mean	0.67	0.38
			StDev	0.12	0.07
			Min	0.41	0.22
			Max	0.90	0.52
			Range	0.49	0.30
		7	Mean	0.67	0.38
			StDev	0.12	0.07
			Min	0.41	0.22
			Max	0.90	0.52
			Range	0.49	0.30
		8	Mean	0.67	0.38
			StDev	0.12	0.07
			Min	0.41	0.22
			Max	0.90	0.52
			Range	0.49	0.30

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
4	Science	0	Mean	0.69	0.30
			StDev	0.13	0.08
			Min	0.23	0.11
			Max	0.94	0.45
			Range	0.71	0.34
		1	Mean	0.69	0.30
			StDev	0.13	0.08
			Min	0.23	0.11
			Max	0.94	0.45
			Range	0.71	0.34
		2	Mean	0.69	0.30
			StDev	0.13	0.08
			Min	0.23	0.11
			Max	0.94	0.45
			Range	0.71	0.34
		3	Mean	0.69	0.30
			StDev	0.13	0.08
			Min	0.23	0.11
			Max	0.94	0.45
			Range	0.71	0.34
		4	Mean	0.69	0.30
			StDev	0.13	0.08
			Min	0.23	0.11
			Max	0.94	0.45
			Range	0.71	0.34
		5	Mean	0.69	0.30
			StDev	0.13	0.08
			Min	0.23	0.11
			Max	0.94	0.45
			Range	0.71	0.34
		6	Mean	0.69	0.30
			StDev	0.13	0.08
			Min	0.23	0.11
			Max	0.94	0.45
			Range	0.71	0.34
		7	Mean	0.69	0.30
			StDev	0.13	0.08
			Min	0.23	0.11
			Max	0.94	0.45
			Range	0.71	0.34
		8	Mean	0.69	0.30
			StDev	0.13	0.08
			Min	0.23	0.11
			Max	0.94	0.45
			Range	0.71	0.34

Table D-4. 2008-09: MontCAS: Item Difficulty and Discrimination Descriptive Statistics by Grade and Content Area and Form

Grade	Content Area	Form	Statistic	Difficulty	Discrimination
5	Mathematics	0	Mean	0.61	0.38
			StDev	0.15	0.09
			Min	0.28	0.20
			Max	0.94	0.65
			Range	0.66	0.45
		1	Mean	0.61	0.38
			StDev	0.15	0.09
			Min	0.28	0.20
			Max	0.94	0.65
			Range	0.66	0.45
		2	Mean	0.61	0.38
			StDev	0.15	0.09
			Min	0.28	0.20
			Max	0.94	0.65
			Range	0.66	0.45
		3	Mean	0.61	0.38
			StDev	0.15	0.09
			Min	0.28	0.20
			Max	0.94	0.65
			Range	0.66	0.45
		4	Mean	0.61	0.38
			StDev	0.15	0.09
			Min	0.28	0.20
			Max	0.94	0.65
			Range	0.66	0.45
		5	Mean	0.61	0.38
			StDev	0.15	0.09
			Min	0.28	0.20
			Max	0.94	0.65
			Range	0.66	0.45
		6	Mean	0.61	0.38
			StDev	0.15	0.09
			Min	0.28	0.20
			Max	0.94	0.65
			Range	0.66	0.45
		7	Mean	0.61	0.38
			StDev	0.15	0.09
			Min	0.28	0.20
			Max	0.94	0.65
			Range	0.66	0.45
		8	Mean	0.61	0.38
			StDev	0.15	0.09
			Min	0.28	0.20
			Max	0.94	0.65
			Range	0.66	0.45

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
5	Reading	0	Mean	0.71	0.39
			StDev	0.12	0.06
			Min	0.31	0.25
			Max	0.87	0.53
			Range	0.56	0.28
		1	Mean	0.71	0.39
			StDev	0.12	0.06
			Min	0.31	0.25
			Max	0.87	0.53
			Range	0.56	0.28
		2	Mean	0.71	0.39
			StDev	0.12	0.06
			Min	0.31	0.25
			Max	0.87	0.53
			Range	0.56	0.28
		3	Mean	0.71	0.39
			StDev	0.12	0.06
			Min	0.31	0.25
			Max	0.87	0.53
			Range	0.56	0.28
		4	Mean	0.71	0.39
			StDev	0.12	0.06
			Min	0.31	0.25
			Max	0.87	0.53
			Range	0.56	0.28
		5	Mean	0.71	0.39
			StDev	0.12	0.06
			Min	0.31	0.25
			Max	0.87	0.53
			Range	0.56	0.28
		6	Mean	0.71	0.39
			StDev	0.12	0.06
			Min	0.31	0.25
			Max	0.87	0.53
			Range	0.56	0.28
		7	Mean	0.71	0.39
			StDev	0.12	0.06
			Min	0.31	0.25
			Max	0.87	0.53
			Range	0.56	0.28
		8	Mean	0.71	0.39
			StDev	0.12	0.06
			Min	0.31	0.25
			Max	0.87	0.53
			Range	0.56	0.28

Table D-5. 2008-09: MontCAS: Item Difficulty and Discrimination Descriptive Statistics by Grade and Content Area and Form

Grade	Content Area	Form	Statistic	Difficulty	Discrimination
6	Mathematics	0	Mean	0.59	0.39
			StDev	0.15	0.09
			Min	0.32	0.24
			Max	0.92	0.60
			Range	0.60	0.36
		1	Mean	0.59	0.39
			StDev	0.15	0.09
			Min	0.32	0.24
			Max	0.92	0.60
			Range	0.60	0.36
		2	Mean	0.59	0.39
			StDev	0.15	0.09
			Min	0.32	0.24
			Max	0.92	0.60
			Range	0.60	0.36
		3	Mean	0.59	0.39
			StDev	0.15	0.09
			Min	0.32	0.24
			Max	0.92	0.60
			Range	0.60	0.36
		4	Mean	0.59	0.39
			StDev	0.15	0.09
			Min	0.32	0.24
			Max	0.92	0.60
			Range	0.60	0.36
		5	Mean	0.59	0.39
			StDev	0.15	0.09
			Min	0.32	0.24
			Max	0.92	0.60
			Range	0.60	0.36
		6	Mean	0.59	0.39
			StDev	0.15	0.09
			Min	0.32	0.24
			Max	0.92	0.60
			Range	0.60	0.36
		7	Mean	0.59	0.39
			StDev	0.15	0.09
			Min	0.32	0.24
			Max	0.92	0.60
			Range	0.60	0.36
		8	Mean	0.59	0.39
			StDev	0.15	0.09
			Min	0.32	0.24
			Max	0.92	0.60
			Range	0.60	0.36

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
6	Reading	0	Mean	0.70	0.39
			StDev	0.13	0.07
			Min	0.44	0.22
			Max	0.91	0.54
			Range	0.47	0.32
		1	Mean	0.70	0.39
			StDev	0.13	0.07
			Min	0.44	0.22
			Max	0.91	0.54
			Range	0.47	0.32
		2	Mean	0.70	0.39
			StDev	0.13	0.07
			Min	0.44	0.22
			Max	0.91	0.54
			Range	0.47	0.32
		3	Mean	0.70	0.39
			StDev	0.13	0.07
			Min	0.44	0.22
			Max	0.91	0.54
			Range	0.47	0.32
		4	Mean	0.70	0.39
			StDev	0.13	0.07
			Min	0.44	0.22
			Max	0.91	0.54
			Range	0.47	0.32
		5	Mean	0.70	0.39
			StDev	0.13	0.07
			Min	0.44	0.22
			Max	0.91	0.54
			Range	0.47	0.32
		6	Mean	0.70	0.39
			StDev	0.13	0.07
			Min	0.44	0.22
			Max	0.91	0.54
			Range	0.47	0.32
		7	Mean	0.70	0.39
			StDev	0.13	0.07
			Min	0.44	0.22
			Max	0.91	0.54
			Range	0.47	0.32
		8	Mean	0.70	0.39
			StDev	0.13	0.07
			Min	0.44	0.22
			Max	0.91	0.54
			Range	0.47	0.32

Table D-6. 2008-09: MontCAS: Item Difficulty and Discrimination Descriptive Statistics by Grade and Content Area and Form

Grade	Content Area	Form	Statistic	Difficulty	Discrimination
7	Mathematics	0	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		1	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		2	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		3	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		4	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		5	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		6	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		7	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		8	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
7	Reading	0	Mean	0.72	0.41
			StDev	0.12	0.07
			Min	0.38	0.19
			Max	0.92	0.54
			Range	0.54	0.35
		1	Mean	0.72	0.41
			StDev	0.12	0.07
			Min	0.38	0.19
			Max	0.92	0.54
			Range	0.54	0.35
		2	Mean	0.72	0.41
			StDev	0.12	0.07
			Min	0.38	0.19
			Max	0.92	0.54
			Range	0.54	0.35
		3	Mean	0.72	0.41
			StDev	0.12	0.07
			Min	0.38	0.19
			Max	0.92	0.54
			Range	0.54	0.35
		4	Mean	0.72	0.41
			StDev	0.12	0.07
			Min	0.38	0.19
			Max	0.92	0.54
			Range	0.54	0.35
		5	Mean	0.72	0.41
			StDev	0.12	0.07
			Min	0.38	0.19
			Max	0.92	0.54
			Range	0.54	0.35
		6	Mean	0.72	0.41
			StDev	0.12	0.07
			Min	0.38	0.19
			Max	0.92	0.54
			Range	0.54	0.35
		7	Mean	0.72	0.41
			StDev	0.12	0.07
			Min	0.38	0.19
			Max	0.92	0.54
			Range	0.54	0.35
		8	Mean	0.72	0.41
			StDev	0.12	0.07
			Min	0.38	0.19
			Max	0.92	0.54
			Range	0.54	0.35

Table D-7. 2008-09: MontCAS: Item Difficulty and Discrimination Descriptive Statistics by Grade and Content Area and Form

Grade	Content Area	Form	Statistic	Difficulty	Discrimination
8	Mathematics	0	Mean	0.57	0.37
			StDev	0.17	0.12
			Min	0.18	0.00
			Max	1.00	0.70
			Range	0.82	0.70
		1	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		2	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		3	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		4	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		5	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		6	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		7	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37
		8	Mean	0.57	0.38
			StDev	0.16	0.07
			Min	0.25	0.22
			Max	0.91	0.59
			Range	0.66	0.37

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Reading	0	Mean	0.73	0.41
			StDev	0.10	0.07
			Min	0.49	0.24
			Max	0.92	0.57
			Range	0.43	0.33
		1	Mean	0.73	0.41
			StDev	0.10	0.07
			Min	0.49	0.24
			Max	0.92	0.57
			Range	0.43	0.33
		2	Mean	0.73	0.41
			StDev	0.10	0.07
			Min	0.49	0.24
			Max	0.92	0.57
			Range	0.43	0.33
		3	Mean	0.73	0.41
			StDev	0.10	0.07
			Min	0.49	0.24
			Max	0.92	0.57
			Range	0.43	0.33
		4	Mean	0.73	0.41
			StDev	0.10	0.07
			Min	0.49	0.24
			Max	0.92	0.57
			Range	0.43	0.33
		5	Mean	0.73	0.41
			StDev	0.10	0.07
			Min	0.49	0.24
			Max	0.92	0.57
			Range	0.43	0.33
		6	Mean	0.73	0.41
			StDev	0.10	0.07
			Min	0.49	0.24
			Max	0.92	0.57
			Range	0.43	0.33
		7	Mean	0.73	0.41
			StDev	0.10	0.07
			Min	0.49	0.24
			Max	0.92	0.57
			Range	0.43	0.33
		8	Mean	0.73	0.41
			StDev	0.10	0.07
			Min	0.49	0.24
			Max	0.92	0.57
			Range	0.43	0.33

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
8	Science	0	Mean	0.63	0.33
			StDev	0.17	0.09
			Min	0.26	0.05
			Max	0.93	0.61
			Range	0.67	0.56
		1	Mean	0.63	0.33
			StDev	0.17	0.09
			Min	0.26	0.05
			Max	0.93	0.61
			Range	0.67	0.56
		2	Mean	0.63	0.33
			StDev	0.17	0.09
			Min	0.26	0.05
			Max	0.93	0.61
			Range	0.67	0.56
		3	Mean	0.63	0.33
			StDev	0.17	0.09
			Min	0.26	0.05
			Max	0.93	0.61
			Range	0.67	0.56
		4	Mean	0.63	0.33
			StDev	0.17	0.09
			Min	0.26	0.05
			Max	0.93	0.61
			Range	0.67	0.56
		5	Mean	0.63	0.33
			StDev	0.17	0.09
			Min	0.26	0.05
			Max	0.93	0.61
			Range	0.67	0.56
		6	Mean	0.63	0.33
			StDev	0.17	0.09
			Min	0.26	0.05
			Max	0.93	0.61
			Range	0.67	0.56
		7	Mean	0.63	0.33
			StDev	0.17	0.09
			Min	0.26	0.05
			Max	0.93	0.61
			Range	0.67	0.56
		8	Mean	0.63	0.33
			StDev	0.17	0.09
			Min	0.26	0.05
			Max	0.93	0.61
			Range	0.67	0.56

Table D-8. 2008-09: MontCAS: Item Difficulty and Discrimination Descriptive Statistics by Grade and Content Area and Form

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
0			Mean	0.50	0.34
			StDev	0.14	0.11
			Min	0.21	0.11
			Max	0.80	0.69
			Range	0.59	0.58
1			Mean	0.50	0.34
			StDev	0.14	0.11
			Min	0.21	0.11
			Max	0.80	0.69
			Range	0.59	0.58
2			Mean	0.50	0.34
			StDev	0.14	0.11
			Min	0.21	0.11
			Max	0.80	0.69
			Range	0.59	0.58
3			Mean	0.50	0.34
			StDev	0.14	0.11
			Min	0.21	0.11
			Max	0.80	0.69
			Range	0.59	0.58
10	Mathematics	4	Mean	0.50	0.34
			StDev	0.14	0.11
			Min	0.21	0.11
			Max	0.80	0.69
			Range	0.59	0.58
5			Mean	0.50	0.34
			StDev	0.14	0.11
			Min	0.21	0.11
			Max	0.80	0.69
			Range	0.59	0.58
6			Mean	0.50	0.34
			StDev	0.14	0.11
			Min	0.21	0.11
			Max	0.80	0.69
			Range	0.59	0.58
7			Mean	0.50	0.34
			StDev	0.14	0.11
			Min	0.21	0.11
			Max	0.80	0.69
			Range	0.59	0.58
8			Mean	0.50	0.34
			StDev	0.14	0.11
			Min	0.21	0.11
			Max	0.80	0.69
			Range	0.59	0.58

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Reading	0	Mean	0.72	0.39
			StDev	0.11	0.08
			Min	0.41	0.21
			Max	0.90	0.58
			Range	0.49	0.37
		1	Mean	0.72	0.39
			StDev	0.11	0.08
			Min	0.41	0.21
			Max	0.90	0.58
			Range	0.49	0.37
		2	Mean	0.72	0.39
			StDev	0.11	0.08
			Min	0.41	0.21
			Max	0.90	0.58
			Range	0.49	0.37
		3	Mean	0.72	0.39
			StDev	0.11	0.08
			Min	0.41	0.21
			Max	0.90	0.58
			Range	0.49	0.37
		4	Mean	0.72	0.39
			StDev	0.11	0.08
			Min	0.41	0.21
			Max	0.90	0.58
			Range	0.49	0.37
		5	Mean	0.72	0.39
			StDev	0.11	0.08
			Min	0.41	0.21
			Max	0.90	0.58
			Range	0.49	0.37
		6	Mean	0.72	0.39
			StDev	0.11	0.08
			Min	0.41	0.21
			Max	0.90	0.58
			Range	0.49	0.37
		7	Mean	0.72	0.39
			StDev	0.11	0.08
			Min	0.41	0.21
			Max	0.90	0.58
			Range	0.49	0.37
		8	Mean	0.72	0.39
			StDev	0.11	0.08
			Min	0.41	0.21
			Max	0.90	0.58
			Range	0.49	0.37

continued

<i>Grade</i>	<i>Content Area</i>	<i>Form</i>	<i>Statistic</i>	<i>Difficulty</i>	<i>Discrimination</i>
10	Science	0	Mean	0.59	0.36
			StDev	0.17	0.08
			Min	0.28	0.17
			Max	0.88	0.52
			Range	0.60	0.35
		1	Mean	0.59	0.36
			StDev	0.17	0.08
			Min	0.28	0.17
			Max	0.88	0.52
			Range	0.60	0.35
		2	Mean	0.59	0.36
			StDev	0.17	0.08
			Min	0.28	0.17
			Max	0.88	0.52
			Range	0.60	0.35
		3	Mean	0.59	0.36
			StDev	0.17	0.08
			Min	0.28	0.17
			Max	0.88	0.52
			Range	0.60	0.35
		4	Mean	0.59	0.36
			StDev	0.17	0.08
			Min	0.28	0.17
			Max	0.88	0.52
			Range	0.60	0.35
		5	Mean	0.59	0.36
			StDev	0.17	0.08
			Min	0.28	0.17
			Max	0.88	0.52
			Range	0.60	0.35
		6	Mean	0.59	0.36
			StDev	0.17	0.08
			Min	0.28	0.17
			Max	0.88	0.52
			Range	0.60	0.35
		7	Mean	0.59	0.36
			StDev	0.17	0.08
			Min	0.28	0.17
			Max	0.88	0.52
			Range	0.60	0.35
		8	Mean	0.59	0.36
			StDev	0.17	0.08
			Min	0.28	0.17
			Max	0.88	0.52
			Range	0.60	0.35

**Table D-9. 2008–09 MontCAS: Difficulty and Discrimination
Mean and S.D. of Classical Item Statistics by Grade, Content Area, and Item Type**

Grade	Content Area	Statistic	All	MC	CR
3	Mathematics	Difficulty	0.69 (0.14)	0.69 (0.14)	0.66 (0.11)
		Discrimination	0.37 (0.09)	0.37 (0.08)	0.48 (0.10)
		N	60	55	5
	Reading	Difficulty	0.67 (0.14)	0.68 (0.13)	0.37 (0.06)
		Discrimination	0.37 (0.08)	0.37 (0.08)	0.48 (0.01)
		N	54	52	2
4	Mathematics	Difficulty	0.65 (0.15)	0.67 (0.15)	0.50 (0.007)
		Discrimination	0.37 (0.08)	0.36 (0.08)	0.48 (0.07)
		N	60	55	5
	Reading	Difficulty	0.67 (0.12)	0.68 (0.11)	0.43 (0.02)
		Discrimination	0.38 (0.07)	0.38 (0.07)	0.38 (0.07)
		N	54	52	2
5	Science	Difficulty	0.69 (0.13)	0.70 (0.12)	0.43 (0.28)
		Discrimination	0.30 (0.08)	0.29 (0.08)	0.35 (0.08)
		N	55	53	2
	Mathematics	Difficulty	0.61 (0.15)	0.61 (0.15)	0.57 (0.10)
		Discrimination	0.38 (0.09)	0.37 (0.08)	0.49 (0.12)
		N	60	55	5
6	Reading	Difficulty	0.71 (0.12)	0.72 (0.10)	0.37 (0.08)
		Discrimination	0.39 (0.06)	0.38 (0.05)	0.53 (0.01)
		N	54	52	2
	Mathematics	Difficulty	0.59 (0.15)	0.60 (0.15)	0.52 (0.15)
		Discrimination	0.39 (0.09)	0.38 (0.09)	0.52 (0.07)
		N	60	55	5
7	Mathematics	Difficulty	0.70 (0.13)	0.71 (0.12)	0.45 (0.01)
		Discrimination	0.39 (0.07)	0.38 (0.07)	0.51 (0.05)
		N	54	52	2
	Reading	Difficulty	0.57 (0.16)	0.57 (0.16)	0.51 (0.19)
		Discrimination	0.38 (0.07)	0.37 (0.06)	0.48 (0.10)
		N	60	55	5
8	Mathematics	Difficulty	0.72 (0.12)	0.73 (0.10)	0.42 (0.06)
		Discrimination	0.41 (0.07)	0.40 (0.07)	0.53 (0.00)
		N	54	52	2
	Reading	Difficulty	0.57 (0.17)	0.58 (0.16)	0.46 (0.16)
		Discrimination	0.37 (0.12)	0.35 (0.10)	0.57 (0.12)
		N	60	55	5
9	Mathematics	Difficulty	0.73 (0.10)	0.74 (0.09)	0.50 (0.01)
		Discrimination	0.41 (0.07)	0.40 (0.06)	0.52 (0.07)
		N	54	52	2
	Science	Difficulty	0.63 (0.17)	0.64 (0.16)	0.33 (0.10)
		Discrimination	0.33 (0.09)	0.32 (0.08)	0.57 (0.06)
		N	55	53	2
10	Mathematics	Difficulty	0.60 (0.14)	0.60 (0.14)	0.44 (0.08)
		Discrimination	0.34 (0.11)	0.32 (0.09)	0.53 (0.13)
		N	59	54	5
	Reading	Difficulty	0.72 (0.11)	0.73 (0.10)	0.47 (0.08)
		Discrimination	0.39 (0.08)	0.38 (0.08)	0.57 (0.01)
		N	54	52	2
11	Science	Difficulty	0.59 (0.17)	0.60 (0.16)	0.42 (0.18)
		Discrimination	0.36 (0.08)	0.36 (0.07)	0.50 (0.01)
		N	55	53	2

Diff = Difficulty (p-value); Disc = Discrimination (point-biserial correlation); N = number of items
 CR = constructed-response and SA2; MC = multiple-choice; All = MC, CR, and SA2.

Appendix E—NUMBER OF ITEMS CLASSIFIED INTO DIF CATEGORIES AND COMMON ITEM DIF CATEGORY COUNTS

Table E-1. 2008-09 MontCAS: Number of Items Classified into DIF Categories Within Subgroups by Grade, Content Area and Item Type

Grade	Content Area	Male/Female DIF Class								White/Hispanic DIF Class									
		All			MC			CR		All			MC			CR			
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
3	Mathematics	58	2	0	53	2	0	5	0	0	57	3	0	52	3	0	5	0	0
	Reading	51	3	0	49	3	0	2	0	0	52	2	0	50	2	0	2	0	0
4	Mathematics	50	9	1	47	7	1	3	2	0	57	3	0	52	3	0	5	0	0
	Reading	50	4	0	49	3	0	1	1	0	45	9	0	43	9	0	2	0	0
	Science	52	3	0	50	3	0	2	0	0	49	6	0	47	6	0	2	0	0
5	Mathematics	51	9	0	47	8	0	4	1	0	57	3	0	52	3	0	5	0	0
	Reading	50	3	1	49	2	1	1	1	0	53	1	0	51	1	0	2	0	0
6	Mathematics	55	3	2	50	3	2	5	0	0	57	3	0	52	3	0	5	0	0
	Reading	51	3	0	50	2	0	1	1	0	47	7	0	45	7	0	2	0	0
7	Mathematics	51	9	0	46	9	0	5	0	0	58	2	0	54	1	0	4	1	0
	Reading	49	5	0	48	4	0	1	1	0	52	2	0	50	2	0	2	0	0
8	Mathematics	48	11	1	45	9	1	3	2	0	58	2	0	53	2	0	5	0	0
	Reading	47	6	1	47	4	1	0	2	0	51	3	0	49	3	0	2	0	0
	Science	48	7	0	46	7	0	2	0	0	53	2	0	51	2	0	2	0	0
10	Mathematics	51	8	0	47	7	0	4	1	0	57	2	0	53	1	0	4	1	0
	Reading	51	3	0	50	2	0	1	1	0	51	3	0	49	3	0	2	0	0
	Science	46	9	0	44	9	0	2	0	0	52	3	0	50	3	0	2	0	0

A = negligible DIF, B = low DIF, C = high DIF

Table E-2. 2008-09 MontCAS: Common Item DIF Category Counts in the Male vs. Female Comparison by Direction of Advantage Grade, Content Area, and Item Type

Grade	Content Area	Item Type	Negligible DIF (A)				Low DIF (B)				High DIF (C)			
			Favor Female	Favor Male	N	%	Favor Female	Favor Male	N	%	Favor Female	Favor Male	N	%
3	Mathematics	MC	32	21	53	96	1	1	2	4	0	0	0	0
		CR	3	2	5	100	0	0	0	0	0	0	0	0
	Reading	MC	32	17	49	94	0	3	3	6	0	0	0	0
		CR	2	0	2	100	0	0	0	0	0	0	0	0
4	Mathematics	MC	25	22	47	85	3	4	7	13	0	1	1	2
		CR	2	1	3	60	2	0	2	40	0	0	0	0
	Reading	MC	25	24	49	94	2	1	3	6	0	0	0	0
		CR	1	0	1	50	1	0	1	50	0	0	0	0
5	Science	MC	28	22	50	94	1	2	3	6	0	0	0	0
		CR	1	1	2	100	0	0	0	0	0	0	0	0
	Mathematics	MC	26	21	47	85	4	4	8	15	0	0	0	0
		CR	2	2	4	80	1	0	1	20	0	0	0	0
6	Reading	MC	25	24	49	94	1	1	2	4	0	1	1	2
		CR	1	0	1	50	1	0	1	50	0	0	0	0
	Mathematics	MC	29	21	50	91	1	2	3	5	0	2	2	4
		CR	5	0	5	100	0	0	0	0	0	0	0	0
7	Mathematics	MC	25	21	46	84	3	6	9	16	0	0	0	0
		CR	4	1	5	100	0	0	0	0	0	0	0	0
	Reading	MC	29	19	48	92	2	2	4	8	0	0	0	0
		CR	1	0	1	50	1	0	1	50	0	0	0	0
8	Mathematics	MC	27	18	45	82	4	5	9	16	0	1	1	2
		CR	3	0	3	60	1	1	2	40	0	0	0	0
	Reading	MC	27	20	47	90	1	3	4	8	0	1	1	2
		CR	0	0	0	0	2	0	2	100	0	0	0	0
10	Science	MC	28	18	46	87	3	4	7	13	0	0	0	0
		CR	1	1	2	100	0	0	0	0	0	0	0	0
	Mathematics	MC	28	19	47	87	2	5	7	13	0	0	0	0
		CR	3	1	4	80	1	0	1	20	0	0	0	0
	Reading	MC	28	22	50	96	1	1	2	4	0	0	0	0
		CR	1	0	1	50	1	0	1	50	0	0	0	0
	Science	MC	24	20	44	83	4	5	9	17	0	0	0	0
		CR	2	0	2	100	0	0	0	0	0	0	0	0

MC = Multiple-Choice; CR = Constructed-response

Appendix F—DELTA ANALYSES AND RESCORE ANALYSIS RESULTS

**Table F-1. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Mathematics Grade 3**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
43015	0.51	0.48	12.90	13.20	13.41	1	False	1.37
43026	0.61	0.63	11.88	11.67	11.84	1	False	-0.94
43026	0.59	0.63	12.09	11.67	11.84	1	False	0.08
43064	0.83	0.84	9.18	9.02	9.14	1	False	-0.89
43105	0.65	0.63	11.46	11.67	11.84	1	False	0.77
43108	0.63	0.64	11.67	11.57	11.74	1	False	-0.82
43124	0.52	0.52	12.80	12.82	13.02	4	False	-0.03
43124	0.54	0.52	12.60	12.82	13.02	4	False	0.96
59289	0.68	0.72	11.13	10.67	10.82	1	False	0.40
59291	0.83	0.82	9.18	9.34	9.46	1	False	0.23
59309	0.90	0.90	7.87	7.87	7.96	1	False	-0.70
59312	0.64	0.66	11.57	11.35	11.51	1	False	-0.88
59314	0.44	0.48	13.60	13.20	13.41	1	False	-0.16
59315	0.81	0.81	9.49	9.49	9.61	1	False	-0.52
59317	0.81	0.81	9.49	9.49	9.61	1	False	-0.52
59323	0.76	0.79	10.17	9.77	9.90	1	False	0.20
59328	0.43	0.44	13.71	13.60	13.82	1	False	-0.57
59329	0.86	0.87	8.68	8.49	8.60	1	False	-0.72
59331	0.45	0.52	13.50	12.80	13.00	1	False	1.37
59332	0.63	0.66	11.67	11.35	11.51	1	False	-0.35
59334	0.79	0.79	9.77	9.77	9.90	1	False	-0.49
59345	0.61	0.63	11.88	11.67	11.84	1	False	-0.94
59347	0.68	0.73	11.13	10.55	10.70	1	False	1.01
59349	0.77	0.80	10.04	9.63	9.76	1	False	0.27
59350	0.36	0.37	14.43	14.33	14.56	1	False	-0.52
60280	0.63	0.72	11.67	10.67	10.82	1	True	3.08
60283	0.64	0.66	11.57	11.35	11.51	1	False	-0.88
60285	0.57	0.60	12.29	11.99	12.17	1	False	-0.49
60290	0.77	0.77	10.04	10.04	10.18	1	False	-0.46
60294	0.64	0.66	11.57	11.35	11.51	1	False	-0.88
60310	0.72	0.73	10.67	10.55	10.70	1	False	-1.00
60316	0.93	0.94	7.10	6.78	6.84	1	False	0.12
60322	0.47	0.55	13.30	12.50	12.69	1	False	1.89
60335	0.60	0.64	11.99	11.57	11.74	1	False	0.11
60350	0.67	0.68	11.24	11.13	11.29	1	False	-0.89
60358	0.64	0.62	11.57	11.78	11.95	1	False	0.77
60361	0.72	0.68	10.67	11.13	11.29	1	False	1.93
60411	0.56	0.53	12.40	12.70	12.89	1	False	1.32
60921	0.66	0.67	11.35	11.24	11.40	1	False	-0.87
60940	0.90	0.90	7.87	7.87	7.96	1	False	-0.70
60944	0.88	0.88	8.30	8.30	8.40	1	False	-0.65
60944	0.88	0.88	8.30	8.30	8.40	1	False	-0.65
60951	0.74	0.69	10.43	11.02	11.17	1	False	2.55
60963	0.67	0.68	11.24	11.13	11.29	1	False	-0.89
61010	0.50	0.56	13.00	12.40	12.58	1	False	0.92
61059	0.84	0.86	9.02	8.68	8.78	1	False	0.04
61199	0.60	0.62	12.01	11.80	11.98	4	False	-0.97
61199	0.60	0.62	12.04	11.80	11.98	4	False	-0.84
61199	0.62	0.62	11.78	11.80	11.98	4	False	-0.14

**Table F-2. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Mathematics Grade 4**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
243063	0.27	0.28	15.45	15.33	15.31	1	False	-0.53
35198	0.39	0.40	14.12	14.01	14.02	1	False	-0.71
43132	0.58	0.51	12.19	12.92	12.96	4	False	1.87
43132	0.56	0.51	12.45	12.92	12.96	4	False	0.90
43189	0.71	0.72	10.79	10.67	10.76	1	False	-0.98
43194	0.54	0.54	12.60	12.60	12.65	1	False	-0.89
43245	0.47	0.47	13.30	13.30	13.33	1	False	-0.96
43245	0.50	0.47	13.00	13.30	13.33	1	False	0.19
43255	0.62	0.71	11.78	10.79	10.88	1	False	2.36
43275	0.87	0.84	8.49	9.02	9.16	1	False	1.47
43386	0.45	0.47	13.50	13.30	13.33	1	False	-0.41
43390	0.46	0.47	13.43	13.35	13.38	4	False	-0.89
43390	0.47	0.47	13.30	13.35	13.38	4	False	-0.77
61783	0.42	0.43	13.81	13.71	13.72	1	False	-0.75
61791	0.61	0.61	11.88	11.88	11.95	1	False	-0.82
61795	0.87	0.86	8.49	8.68	8.83	1	False	0.19
61796	0.72	0.76	10.67	10.17	10.28	1	False	0.40
61798	0.49	0.52	13.10	12.80	12.84	1	False	-0.08
61801	0.86	0.88	8.68	8.30	8.46	1	False	-0.22
61803	0.61	0.63	11.88	11.67	11.74	1	False	-0.54
61813	0.58	0.60	12.19	11.99	12.05	1	False	-0.52
61815	0.82	0.83	9.34	9.18	9.32	1	False	-0.98
61817	0.68	0.70	11.13	10.90	10.99	1	False	-0.55
61819	0.69	0.76	11.02	10.17	10.28	1	False	1.73
61822	0.56	0.57	12.40	12.29	12.35	1	False	-0.89
61827	0.85	0.83	8.85	9.18	9.32	1	False	0.70
61828	0.72	0.72	10.67	10.67	10.76	1	False	-0.70
61831	0.65	0.66	11.46	11.35	11.43	1	False	-0.95
61832	0.45	0.41	13.50	13.91	13.92	1	False	0.54
61833	0.61	0.67	11.88	11.24	11.32	1	False	1.07
62135	0.76	0.75	10.17	10.30	10.41	1	False	-0.18
62140	0.74	0.75	10.43	10.30	10.41	1	False	-0.99
62146	0.55	0.57	12.50	12.29	12.35	1	False	-0.50
62155	0.72	0.71	10.67	10.79	10.88	1	False	-0.26
62196	0.67	0.69	11.24	11.02	11.10	1	False	-0.55
62217	0.65	0.64	11.46	11.57	11.64	1	False	-0.38
62222	0.63	0.62	11.67	11.78	11.85	1	False	-0.41
62225	0.59	0.63	12.09	11.67	11.74	1	False	0.25
62228	0.52	0.49	12.80	13.10	13.13	1	False	0.21
62256	0.74	0.76	10.43	10.17	10.28	1	False	-0.52
62262	0.74	0.71	10.43	10.79	10.88	1	False	0.66
62294	0.31	0.30	14.98	15.10	15.08	1	False	-0.69
62302	0.73	0.75	10.55	10.30	10.41	1	False	-0.53
62307	0.60	0.68	11.99	11.13	11.21	1	False	1.88
62311	0.49	0.53	13.10	12.70	12.74	1	False	0.29
62326	0.77	0.77	10.04	10.04	10.16	1	False	-0.64
62335	0.63	0.57	11.67	12.29	12.35	1	False	1.51
62339	0.57	0.68	12.29	11.13	11.21	1	True	3.05
62370	0.81	0.81	9.49	9.49	9.61	1	False	-0.59
62384	0.64	0.64	11.57	11.57	11.64	1	False	-0.79
62384	0.64	0.64	11.57	11.57	11.64	1	False	-0.79
62413	0.48	0.41	13.20	13.91	13.92	1	False	1.69

**Table F-3. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Mathematics Grade 5**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
34658	0.43	0.53	13.71	12.70	12.92	1	False	2.63
43449	0.69	0.69	11.02	11.02	11.17	1	False	-0.71
43455	0.54	0.55	12.60	12.50	12.71	1	False	-0.89
43469	0.51	0.51	12.90	12.90	13.13	1	False	-0.26
43508	0.35	0.38	14.54	14.22	14.52	1	False	-1.36
43522	0.57	0.60	12.29	11.99	12.18	1	False	-0.89
43554	0.55	0.61	12.50	11.88	12.07	1	False	0.76
59810	0.52	0.58	12.80	12.19	12.39	1	False	0.64
59814	0.65	0.69	11.46	11.02	11.17	1	False	0.05
59818	0.44	0.53	13.60	12.70	12.92	1	False	2.09
59830	0.60	0.59	11.99	12.09	12.29	1	False	0.09
59840	0.69	0.72	11.02	10.67	10.80	1	False	-0.36
59841	0.51	0.53	12.90	12.70	12.92	1	False	-1.37
59848	0.78	0.78	9.91	9.91	10.01	1	False	-0.97
59858	0.53	0.55	12.70	12.50	12.71	1	False	-1.42
59861	0.58	0.57	12.19	12.29	12.50	1	False	0.14
59872	0.62	0.61	11.78	11.88	12.07	1	False	0.05
59900	0.51	0.54	12.90	12.60	12.82	1	False	-1.07
59902	0.49	0.54	13.10	12.60	12.82	1	False	-0.01
59908	0.69	0.73	11.02	10.55	10.68	1	False	0.30
59928	0.54	0.60	12.60	11.99	12.18	1	False	0.72
59995	0.71	0.73	10.79	10.55	10.68	1	False	-0.91
60065	0.59	0.56	12.09	12.40	12.61	1	False	1.24
60067	0.70	0.65	10.90	11.46	11.63	1	False	2.33
60363	0.67	0.65	11.24	11.46	11.63	1	False	0.55
60383	0.80	0.80	9.63	9.63	9.72	1	False	-1.04
60387	0.49	0.48	13.10	13.20	13.45	1	False	0.34
60415	0.92	0.94	7.38	6.78	6.74	1	False	1.89
60506	0.62	0.62	11.78	11.78	11.96	1	False	-0.53
60510	0.45	0.44	13.50	13.60	13.87	1	False	0.44
60562	0.76	0.78	10.17	9.91	10.01	1	False	-0.63
60839	0.90	0.89	7.87	8.09	8.11	1	False	-0.24
60843	0.90	0.91	7.87	7.64	7.63	1	False	-0.23
60845	0.72	0.74	10.67	10.43	10.55	1	False	-0.86
60845	0.72	0.74	10.67	10.43	10.55	1	False	-0.86
60979	0.34	0.38	14.65	14.22	14.52	1	False	-0.78
60987	0.47	0.46	13.30	13.40	13.66	1	False	0.39
61029	0.67	0.65	11.24	11.46	11.63	1	False	0.55
61035	0.52	0.55	12.80	12.50	12.71	1	False	-1.04
62033	0.67	0.66	11.24	11.35	11.51	1	False	-0.05
62035	0.69	0.68	11.02	11.13	11.28	1	False	-0.09
62112	0.57	0.55	12.27	12.55	12.77	4	False	1.13
62112	0.53	0.55	12.67	12.55	12.77	4	False	-1.01
235938	0.38	0.46	14.22	13.40	13.66	1	False	1.48
236006	0.48	0.49	13.20	13.10	13.34	1	False	-0.74
236006	0.49	0.49	13.10	13.10	13.34	1	False	-0.21
236279	0.22	0.28	16.09	15.33	15.68	1	False	0.69

Table F-4. 2008-09 MontCAS: Delta Analyses—by Grade and Content Area—Mathematics Grade 6

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
43887	0.58	0.58	12.19	12.19	12.37	1	False	-0.39
43902	0.46	0.51	13.40	12.90	13.08	1	False	0.30
43902	0.53	0.51	12.70	12.90	13.08	1	False	0.60
43925	0.32	0.32	14.87	14.87	15.07	1	False	-0.27
43966	0.58	0.61	12.19	11.88	12.06	1	False	-0.57
44017	0.44	0.51	13.60	12.90	13.08	1	False	1.27
44027	0.37	0.39	14.33	14.12	14.31	1	False	-1.15
44040	0.62	0.64	11.78	11.57	11.74	1	False	-1.03
44094	0.83	0.84	9.18	9.02	9.17	1	False	-1.15
60880	0.28	0.34	15.33	14.65	14.85	1	False	1.08
60883	0.54	0.53	12.60	12.70	12.88	1	False	0.12
60884	0.78	0.79	9.91	9.77	9.93	1	False	-1.15
60890	0.68	0.65	11.13	11.46	11.63	1	False	1.15
60890	0.68	0.65	11.13	11.46	11.63	1	False	1.15
60894	0.81	0.81	9.49	9.49	9.64	1	False	-0.51
61130	0.79	0.86	9.77	8.68	8.82	1	True	3.33
61136	0.46	0.46	13.40	13.40	13.59	1	False	-0.33
61147	0.51	0.52	12.90	12.80	12.98	1	False	-0.84
61147	0.50	0.52	13.00	12.80	12.98	1	False	-1.14
61148	0.63	0.66	11.67	11.35	11.52	1	False	-0.49
61151	0.55	0.51	12.50	12.90	13.08	1	False	1.57
61155	0.53	0.55	12.70	12.50	12.68	1	False	-1.12
61160	0.71	0.71	10.79	10.79	10.95	1	False	-0.45
61166	0.79	0.77	9.77	10.04	10.20	1	False	0.81
61173	0.45	0.48	13.50	13.20	13.39	1	False	-0.67
62012	0.68	0.68	11.13	11.13	11.29	1	False	-0.44
62012	0.68	0.68	11.13	11.13	11.29	1	False	-0.44
62021	0.62	0.61	11.78	11.88	12.06	1	False	0.10
62044	0.56	0.61	12.40	11.88	12.06	1	False	0.40
62046	0.71	0.73	10.79	10.55	10.71	1	False	-0.86
62054	0.70	0.72	10.90	10.67	10.83	1	False	-0.88
62054	0.70	0.72	10.90	10.67	10.83	1	False	-0.88
62058	0.33	0.36	14.76	14.43	14.63	1	False	-0.61
62058	0.33	0.36	14.76	14.43	14.63	1	False	-0.61
62062	0.71	0.70	10.79	10.90	11.07	1	False	0.11
62071	0.53	0.55	12.70	12.50	12.68	1	False	-1.12
62073	0.60	0.57	11.99	12.29	12.47	1	False	1.09
62073	0.60	0.57	11.99	12.29	12.47	1	False	1.09
62958	0.73	0.74	10.55	10.43	10.59	1	False	-1.05
62987	0.72	0.72	10.67	10.67	10.83	1	False	-0.46
62987	0.71	0.72	10.79	10.67	10.83	1	False	-1.02
62991	0.56	0.53	12.40	12.70	12.88	1	False	1.08
63003	0.43	0.46	13.71	13.40	13.59	1	False	-0.67
63021	0.65	0.71	11.46	10.79	10.95	1	False	1.21
63024	0.58	0.65	12.19	11.46	11.63	1	False	1.47
63137	0.61	0.66	11.88	11.35	11.52	1	False	0.52
63137	0.61	0.66	11.88	11.35	11.52	1	False	0.52
63146	0.68	0.70	11.13	10.90	11.07	1	False	-0.93
63147	0.50	0.47	13.00	13.30	13.49	1	False	1.10
63147	0.49	0.47	13.10	13.30	13.49	1	False	0.62
63154	0.50	0.51	13.00	12.90	13.08	1	False	-0.84
239345	0.62	0.70	11.78	10.90	11.07	1	False	2.18
242551	0.68	0.72	11.13	10.67	10.83	1	False	0.20
243039	0.37	0.38	14.38	14.20	14.39	4	False	-1.18
243039	0.34	0.38	14.70	14.20	14.39	4	False	0.28
243039	0.34	0.38	14.62	14.20	14.39	4	False	-0.12

**Table F-5. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Mathematics Grade 7**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
43663	0.54	0.59	12.60	12.09	12.25	1	False	0.29
43675	0.53	0.65	12.70	11.46	11.67	1	True	3.60
43796	0.45	0.50	13.50	13.00	13.09	1	False	0.61
43846	0.53	0.51	12.70	12.90	12.99	1	False	0.02
43941	0.31	0.25	15.04	15.76	15.63	4	False	1.45
44203	0.79	0.79	9.77	9.77	10.12	1	False	0.24
44238	0.41	0.40	13.91	14.01	14.02	1	False	-0.88
61178	0.45	0.47	13.50	13.30	13.36	1	False	-0.74
61181	0.52	0.57	12.80	12.29	12.44	1	False	0.35
61181	0.51	0.57	12.90	12.29	12.44	1	False	0.83
61182	0.41	0.38	13.91	14.22	14.21	1	False	0.05
61183	0.40	0.42	14.01	13.81	13.83	1	False	-0.53
61195	0.35	0.37	14.54	14.33	14.31	1	False	-0.29
61202	0.47	0.53	13.30	12.70	12.81	1	False	0.97
61204	0.46	0.49	13.40	13.10	13.18	1	False	-0.33
61206	0.74	0.79	10.43	9.77	10.12	1	False	0.10
61207	0.48	0.51	13.20	12.90	12.99	1	False	-0.41
61209	0.67	0.67	11.24	11.24	11.47	1	False	-0.32
61232	0.67	0.67	11.24	11.24	11.47	1	False	-0.32
61232	0.66	0.67	11.35	11.24	11.47	1	False	-0.86
61254	0.72	0.78	10.67	9.91	10.24	1	False	0.66
61255	0.47	0.45	13.30	13.50	13.55	1	False	-0.21
61257	0.38	0.39	14.22	14.12	14.12	1	False	-0.90
61264	0.52	0.54	12.80	12.60	12.72	1	False	-1.01
61264	0.52	0.54	12.80	12.60	12.72	1	False	-1.01
61275	0.45	0.40	13.50	14.01	14.02	1	False	1.10
61283	0.82	0.83	9.34	9.18	9.57	1	False	-0.29
61283	0.82	0.83	9.34	9.18	9.57	1	False	-0.29
61288	0.61	0.62	11.88	11.78	11.96	1	False	-1.04
61340	0.56	0.57	12.40	12.29	12.44	1	False	-1.22
61348	0.52	0.50	12.80	13.00	13.09	1	False	-0.02
61354	0.69	0.66	11.02	11.35	11.57	1	False	1.26
61354	0.69	0.66	11.02	11.35	11.57	1	False	1.26
61365	0.87	0.91	8.49	7.64	8.15	1	False	0.27
61365	0.87	0.91	8.49	7.64	8.15	1	False	0.27
61369	0.56	0.67	12.40	11.24	11.47	1	True	3.10
61372	0.57	0.59	12.29	12.09	12.25	1	False	-1.19
61374	0.68	0.68	11.13	11.13	11.36	1	False	-0.28
61721	0.32	0.32	14.87	14.87	14.81	1	False	-1.12
61723	0.29	0.33	15.21	14.76	14.71	1	False	1.04
61740	0.65	0.63	11.46	11.67	11.86	1	False	0.55
61746	0.28	0.27	15.33	15.45	15.34	1	False	-1.35
61756	0.52	0.54	12.80	12.60	12.72	1	False	-1.01
61760	0.55	0.52	12.50	12.80	12.90	1	False	0.55
61763	0.75	0.77	10.30	10.04	10.36	1	False	-1.11
61766	0.86	0.88	8.68	8.30	8.76	1	False	-1.03
61769	0.75	0.76	10.30	10.17	10.48	1	False	-0.53
61769	0.75	0.76	10.30	10.17	10.48	1	False	-0.53
61772	0.89	0.90	8.09	7.87	8.36	1	False	-0.10
61776	0.48	0.44	13.20	13.60	13.64	1	False	0.73
61777	0.68	0.72	11.13	10.67	10.94	1	False	-0.49
61785	0.53	0.54	12.70	12.60	12.72	1	False	-1.33
61785	0.52	0.54	12.80	12.60	12.72	1	False	-1.01
61792	0.49	0.51	13.10	12.90	12.99	1	False	-0.90
61799	0.62	0.63	11.78	11.67	11.86	1	False	-1.00

continued

<i>IREF</i>	<i>OldP</i>	<i>NewP</i>	<i>OldDelta</i>	<i>NewDelta</i>	<i>Line</i>	<i>Max</i>	<i>Discard</i>	<i>Std</i>
61871	0.46	0.52	13.40	12.80	12.90	1	False	1.01
61875	0.51	0.48	12.90	13.20	13.27	1	False	0.39
61876	0.83	0.85	9.18	8.85	9.27	1	False	-1.01
61882	0.58	0.64	12.19	11.57	11.77	1	False	0.66
61919	0.40	0.36	14.07	14.43	14.41	4	False	0.24
61919	0.42	0.36	13.86	14.43	14.41	4	False	1.25
61919	0.41	0.36	13.88	14.43	14.41	4	False	1.12
62948	0.34	0.38	14.65	14.22	14.21	1	False	0.71

**Table F-6. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Mathematics Grade 8**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
244557	0.71	0.69	10.79	11.02	11.07	1	False	0.43
43888	0.53	0.53	12.70	12.70	12.74	1	False	-0.88
44119	0.69	0.71	11.02	10.79	10.84	1	False	-0.12
44119	0.71	0.71	10.79	10.79	10.84	1	False	-0.82
44127	0.78	0.76	9.91	10.17	10.23	1	False	0.63
44130	0.61	0.65	11.88	11.46	11.51	1	False	0.96
44137	0.53	0.58	12.70	12.19	12.24	1	False	1.43
44139	0.33	0.34	14.76	14.65	14.68	1	False	-0.67
44141	0.75	0.77	10.30	10.04	10.10	1	False	0.01
44149	0.64	0.65	11.57	11.46	11.51	1	False	-0.77
44184	0.35	0.36	14.54	14.43	14.47	1	False	-0.69
44197	0.35	0.33	14.54	14.76	14.79	1	False	0.25
44197	0.34	0.33	14.65	14.76	14.79	1	False	-0.34
44209	0.66	0.65	11.35	11.46	11.51	1	False	-0.25
44213	0.29	0.29	15.21	15.21	15.24	1	False	-0.95
44236	0.55	0.54	12.50	12.60	12.64	1	False	-0.33
61198	0.40	0.40	14.01	14.01	14.05	1	False	-0.92
62829	0.51	0.53	12.90	12.70	12.74	1	False	-0.23
62833	0.49	0.52	13.10	12.80	12.84	1	False	0.32
62856	0.63	0.65	11.67	11.46	11.51	1	False	-0.19
62864	0.42	0.42	13.81	13.81	13.84	1	False	-0.91
62864	0.41	0.42	13.91	13.81	13.84	1	False	-0.73
62985	0.73	0.75	10.55	10.30	10.36	1	False	-0.05
62986	0.57	0.62	12.29	11.78	11.82	1	False	1.47
62992	0.75	0.74	10.30	10.43	10.48	1	False	-0.13
63031	0.70	0.66	10.90	11.35	11.40	1	False	1.60
63038	0.83	0.84	9.18	9.02	9.08	1	False	-0.55
63059	0.43	0.46	13.71	13.40	13.44	1	False	0.35
63095	0.59	0.58	12.09	12.19	12.24	1	False	-0.30
63106	0.85	0.87	8.85	8.49	8.56	1	False	0.52
63111	0.24	0.27	15.83	15.45	15.48	1	False	0.80
63132	0.52	0.54	12.80	12.60	12.64	1	False	-0.23
63135	0.70	0.70	10.90	10.90	10.95	1	False	-0.83
63138	0.68	0.68	11.13	11.13	11.18	1	False	-0.83
63170	0.51	0.41	12.90	13.91	13.94	1	True	4.60
63215	0.45	0.44	13.50	13.60	13.64	1	False	-0.35
63219	0.52	0.55	12.80	12.50	12.54	1	False	0.32
63223	0.59	0.56	12.09	12.40	12.44	1	False	0.80
63223	0.58	0.56	12.19	12.40	12.44	1	False	0.24
63242	0.62	0.62	11.78	11.78	11.82	1	False	-0.85
63250	0.47	0.51	13.30	12.90	12.94	1	False	0.87
63269	0.67	0.69	11.24	11.02	11.07	1	False	-0.15
63287	0.66	0.62	11.35	11.78	11.82	1	False	1.48
63294	0.44	0.45	13.60	13.50	13.54	1	False	-0.75
63297	0.32	0.32	14.93	14.87	14.90	4	False	-0.96
63297	0.32	0.32	14.93	14.87	14.90	4	False	-0.96
63305	0.54	0.53	12.65	12.72	12.76	4	False	-0.47
63305	0.53	0.53	12.72	12.72	12.76	4	False	-0.88

**Table F-7. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Mathematics Grade 10**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
43609	0.48	0.49	13.20	13.10	13.18	1	False	-1.24
43710	0.52	0.53	12.80	12.70	12.76	1	False	-1.16
43803	0.55	0.56	12.50	12.40	12.44	1	False	-1.10
43807	0.56	0.57	12.40	12.29	12.34	1	False	-1.08
43880	0.72	0.73	10.67	10.55	10.53	1	False	-0.66
44009	0.28	0.34	15.33	14.65	14.78	1	False	1.33
59363	0.66	0.66	11.35	11.35	11.36	1	False	-1.33
59366	0.27	0.32	15.45	14.87	15.01	1	False	0.79
59367	0.50	0.48	13.00	13.20	13.28	1	False	0.02
59369	0.44	0.42	13.60	13.81	13.91	1	False	0.15
59373	0.69	0.71	11.02	10.79	10.77	1	False	-0.16
59379	0.48	0.50	13.20	13.00	13.07	1	False	-0.73
59396	0.36	0.33	14.43	14.76	14.90	1	False	0.93
59402	0.67	0.70	11.24	10.90	10.89	1	False	0.35
59406	0.60	0.55	11.99	12.50	12.55	1	False	1.41
61270	0.64	0.62	11.57	11.78	11.80	1	False	-0.20
61270	0.63	0.62	11.67	11.78	11.80	1	False	-0.72
61273	0.35	0.39	14.54	14.12	14.23	1	False	0.16
61312	0.60	0.63	11.99	11.67	11.69	1	False	0.09
61319	0.39	0.43	14.12	13.71	13.80	1	False	0.18
61326	0.52	0.56	12.80	12.40	12.44	1	False	0.39
61335	0.32	0.34	14.87	14.65	14.78	1	False	-0.94
61345	0.37	0.33	14.33	14.76	14.90	1	False	1.46
61360	0.36	0.40	14.43	14.04	14.15	4	False	0.03
61360	0.34	0.40	14.62	14.04	14.15	4	False	0.96
62176	0.80	0.77	9.63	10.04	10.00	1	False	0.45
62184	0.48	0.50	13.20	13.00	13.07	1	False	-0.73
62191	0.29	0.29	15.21	15.21	15.37	1	False	-0.59
62205	0.75	0.78	10.30	9.91	9.86	1	False	0.80
62211	0.38	0.35	14.22	14.54	14.67	1	False	0.86
62230	0.34	0.35	14.65	14.54	14.67	1	False	-1.25
62236	0.21	0.21	16.23	16.23	16.42	1	False	-0.40
62240	0.46	0.48	13.40	13.20	13.28	1	False	-0.76
62288	0.53	0.50	12.70	13.00	13.07	1	False	0.47
62300	0.60	0.60	11.99	11.99	12.02	1	False	-1.20
62345	0.31	0.33	14.98	14.76	14.90	1	False	-0.95
62347	0.45	0.44	13.50	13.60	13.70	1	False	-0.40
62361	0.56	0.57	12.40	12.29	12.34	1	False	-1.08
62372	0.40	0.39	14.01	14.12	14.23	1	False	-0.29
62374	0.72	0.71	10.67	10.79	10.77	1	False	-0.85
62378	0.52	0.54	12.80	12.60	12.65	1	False	-0.65
62383	0.46	0.52	13.40	12.80	12.86	1	False	1.30
241044	0.30	0.40	15.10	14.01	14.12	1	True	3.44
241110	0.33	0.30	14.76	15.10	15.25	1	False	1.06
241198	0.50	0.46	13.00	13.40	13.49	1	False	1.05
242933	0.47	0.47	13.28	13.33	13.41	4	False	-0.70
242933	0.47	0.47	13.35	13.33	13.41	4	False	-1.07
242933	0.48	0.47	13.20	13.33	13.41	4	False	-0.33
242933	0.49	0.47	13.10	13.33	13.41	4	False	0.17
243088	0.37	0.42	14.33	13.81	13.91	1	False	0.70
248819	0.54	0.48	12.60	13.20	13.28	1	False	2.00

**Table F-8. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Reading Grade 3**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
66948	0.56	0.54	12.40	12.60	12.61	1	False	-0.28
66948	0.58	0.54	12.19	12.60	12.61	1	False	0.82
66965	0.49	0.49	13.10	13.10	13.08	1	False	-1.33
66965	0.49	0.49	13.10	13.10	13.08	1	False	-1.33
66988	0.71	0.74	10.79	10.43	10.56	1	False	-0.23
66994	0.68	0.68	11.13	11.13	11.23	1	False	-0.91
67001	0.71	0.71	10.79	10.79	10.90	1	False	-0.80
67001	0.71	0.71	10.79	10.79	10.90	1	False	-0.80
67005	0.71	0.67	10.79	11.24	11.33	1	False	1.50
67013	0.78	0.77	9.91	10.04	10.20	1	False	0.15
67228	0.70	0.68	10.90	11.13	11.23	1	False	0.31
67232	0.66	0.65	11.35	11.46	11.54	1	False	-0.43
67310	0.62	0.61	11.78	11.88	11.94	1	False	-0.58
67393	0.64	0.60	11.57	11.99	12.03	1	False	1.09
67415	0.65	0.70	11.46	10.90	11.01	1	False	0.98
67429	0.83	0.87	9.18	8.49	8.74	1	False	0.95
67436	0.84	0.83	9.02	9.18	9.39	1	False	0.56
67436	0.83	0.83	9.18	9.18	9.39	1	False	-0.30
67483	0.85	0.84	8.85	9.02	9.24	1	False	0.65
67483	0.84	0.84	9.02	9.02	9.24	1	False	-0.25
67489	0.83	0.84	9.18	9.02	9.24	1	False	-1.12
67566	0.86	0.87	8.68	8.49	8.74	1	False	-1.08
67571	0.48	0.46	13.20	13.40	13.37	1	False	-0.53
67614	0.50	0.45	13.00	13.50	13.46	1	False	1.06
67809	0.41	0.41	13.91	13.91	13.85	1	False	-1.08
67811	0.62	0.61	11.78	11.88	11.94	1	False	-0.58
67812	0.70	0.71	10.90	10.79	10.90	1	False	-1.43
67823	0.41	0.44	13.91	13.60	13.56	1	False	0.47
67845	0.66	0.64	11.35	11.57	11.64	1	False	0.12
67884	0.79	0.77	9.77	10.04	10.20	1	False	0.88
67947	0.54	0.53	12.60	12.70	12.70	1	False	-0.86
67954	0.36	0.33	14.41	14.73	14.62	4	False	-0.28
68778	0.82	0.87	9.34	8.49	8.74	1	False	1.78
68779	0.55	0.53	12.50	12.70	12.70	1	False	-0.31
68780	0.82	0.84	9.34	9.02	9.24	1	False	-0.90
68781	0.76	0.80	10.17	9.63	9.82	1	False	0.50
68782	0.61	0.65	11.88	11.46	11.54	1	False	0.44
68783	0.68	0.76	11.13	10.17	10.33	1	False	2.90
68787	0.74	0.73	10.43	10.55	10.68	1	False	-0.07
68789	0.62	0.71	11.78	10.79	10.90	1	True	3.29
68793	0.69	0.74	11.02	10.43	10.56	1	False	1.01
68798	0.74	0.79	10.43	9.77	9.95	1	False	1.15
68799	0.70	0.67	10.90	11.24	11.33	1	False	0.88
68799	0.69	0.67	11.02	11.24	11.33	1	False	0.26
68801	0.68	0.70	11.13	10.90	11.01	1	False	-0.79
68802	0.63	0.66	11.67	11.35	11.43	1	False	-0.14
68803	0.79	0.83	9.77	9.18	9.39	1	False	0.63
68803	0.79	0.83	9.77	9.18	9.39	1	False	0.63
68844	0.66	0.64	11.35	11.57	11.64	1	False	0.12
68844	0.61	0.64	11.88	11.57	11.64	1	False	-0.10
68844	0.61	0.64	11.88	11.57	11.64	1	False	-0.10
68851	0.71	0.70	10.79	10.90	11.01	1	False	-0.21
68852	0.69	0.71	11.02	10.79	10.90	1	False	-0.81
68854	0.57	0.58	12.29	12.19	12.23	1	False	-1.06
68855	0.53	0.53	12.70	12.70	12.70	1	False	-1.40

continued

<i>IREF</i>	<i>OldP</i>	<i>NewP</i>	<i>OldDelta</i>	<i>NewDelta</i>	<i>Line</i>	<i>Max</i>	<i>Discard</i>	<i>Std</i>
68855	0.52	0.53	12.80	12.70	12.70	1	False	-0.92
68856	0.80	0.81	9.63	9.49	9.68	1	False	-1.18
68857	0.66	0.67	11.35	11.24	11.33	1	False	-1.32
68858	0.84	0.85	9.02	8.85	9.08	1	False	-1.11
68858	0.83	0.85	9.18	8.85	9.08	1	False	-0.88
68860	0.53	0.52	12.70	12.80	12.80	1	False	-0.89
68861	0.72	0.69	10.67	11.02	11.12	1	False	1.00
68861	0.72	0.69	10.67	11.02	11.12	1	False	1.00
68862	0.80	0.82	9.63	9.34	9.54	1	False	-0.91
68863	0.43	0.46	13.71	13.40	13.37	1	False	0.40
68868	0.38	0.41	14.27	13.91	13.85	4	False	0.88
68868	0.38	0.41	14.27	13.91	13.85	4	False	0.88

**Table F-9. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Reading Grade 4**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
41043	0.68	0.68	11.13	11.13	11.30	1	False	-0.53
41047	0.57	0.60	12.29	11.99	12.16	1	False	-0.68
41048	0.64	0.68	11.57	11.13	11.30	1	False	-0.03
41050	0.62	0.72	11.78	10.67	10.84	1	True	3.36
41051	0.65	0.65	11.46	11.46	11.63	1	False	-0.53
41053	0.65	0.68	11.46	11.13	11.30	1	False	-0.57
41053	0.66	0.68	11.35	11.13	11.30	1	False	-1.12
41054	0.66	0.72	11.35	10.67	10.84	1	False	1.20
41054	0.69	0.72	11.02	10.67	10.84	1	False	-0.48
41055	0.60	0.58	11.99	12.19	12.36	1	False	0.51
41057	0.83	0.81	9.18	9.49	9.66	1	False	1.00
41061	0.67	0.69	11.24	11.02	11.19	1	False	-1.10
41062	0.56	0.59	12.40	12.09	12.26	1	False	-0.69
41063	0.78	0.76	9.91	10.17	10.34	1	False	0.80
41066	0.35	0.41	14.54	13.88	14.05	4	False	1.07
41066	0.38	0.41	14.27	13.88	14.05	4	False	-0.27
66495	0.85	0.89	8.85	8.09	8.26	1	False	1.61
66501	0.87	0.87	8.49	8.49	8.66	1	False	-0.54
66507	0.64	0.65	11.57	11.46	11.63	1	False	-1.07
66507	0.64	0.65	11.57	11.46	11.63	1	False	-1.07
66507	0.62	0.65	11.78	11.46	11.63	1	False	-0.62
66513	0.88	0.90	8.30	7.87	8.04	1	False	-0.08
66515	0.62	0.60	11.78	11.99	12.16	1	False	0.52
66515	0.62	0.60	11.78	11.99	12.16	1	False	0.52
66526	0.76	0.78	10.17	9.91	10.08	1	False	-0.90
66537	0.68	0.68	11.13	11.13	11.30	1	False	-0.53
66656	0.85	0.86	8.85	8.68	8.85	1	False	-1.34
66656	0.84	0.86	9.02	8.68	8.85	1	False	-0.50
66669	0.84	0.87	9.02	8.49	8.66	1	False	0.43
66804	0.70	0.69	10.90	11.02	11.19	1	False	0.05
66807	0.85	0.83	8.85	9.18	9.35	1	False	1.12
66813	0.70	0.74	10.90	10.43	10.60	1	False	0.17
66819	0.89	0.90	8.09	7.87	8.04	1	False	-1.11
66834	0.84	0.83	9.02	9.18	9.35	1	False	0.28
66834	0.84	0.83	9.02	9.18	9.35	1	False	0.28
66851	0.56	0.59	12.40	12.09	12.26	1	False	-0.69
66851	0.56	0.59	12.40	12.09	12.26	1	False	-0.69
66856	0.73	0.75	10.55	10.30	10.47	1	False	-0.99
66861	0.61	0.66	11.88	11.35	11.52	1	False	0.45
66864	0.66	0.67	11.35	11.24	11.41	1	False	-1.08
66877	0.53	0.56	12.70	12.40	12.57	1	False	-0.71
66905	0.77	0.77	10.04	10.04	10.21	1	False	-0.53
66926	0.53	0.57	12.70	12.29	12.46	1	False	-0.20
66936	0.74	0.75	10.43	10.30	10.47	1	False	-1.16
66949	0.66	0.61	11.35	11.88	12.05	1	False	2.15
66955	0.51	0.53	12.90	12.70	12.87	1	False	-1.22
66966	0.48	0.46	13.20	13.40	13.57	1	False	0.49
66989	0.70	0.73	10.90	10.55	10.72	1	False	-0.45
66989	0.71	0.73	10.79	10.55	10.72	1	False	-1.03
67017	0.39	0.44	14.09	13.65	13.82	4	False	-0.04
67231	0.70	0.70	10.90	10.90	11.07	1	False	-0.53
67250	0.60	0.59	11.99	12.09	12.26	1	False	-0.01
67254	0.51	0.51	12.90	12.90	13.07	1	False	-0.53
67259	0.60	0.67	11.99	11.24	11.41	1	False	1.53

continued

<i>IREF</i>	<i>OldP</i>	<i>NewP</i>	<i>OldDelta</i>	<i>NewDelta</i>	<i>Line</i>	<i>Max</i>	<i>Discard</i>	<i>Std</i>
67262	0.67	0.66	11.24	11.35	11.52	1	False	0.02
67268	0.62	0.65	11.78	11.46	11.63	1	False	-0.62
67269	0.57	0.56	12.29	12.40	12.57	1	False	-0.01
67276	0.62	0.57	11.78	12.29	12.46	1	False	2.07
67276	0.62	0.57	11.78	12.29	12.46	1	False	2.07
67302	0.60	0.63	11.99	11.67	11.84	1	False	-0.65
67306	0.49	0.53	13.10	12.70	12.87	1	False	-0.21
67317	0.45	0.44	13.50	13.60	13.77	1	False	-0.01
67321	0.64	0.62	11.57	11.78	11.95	1	False	0.54
67325	0.65	0.67	11.46	11.24	11.41	1	False	-1.13
67325	0.59	0.67	12.09	11.24	11.41	1	False	2.05
67326	0.70	0.76	10.90	10.17	10.34	1	False	1.44

**Table F-10. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Reading Grade 5**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
63780	0.72	0.74	10.67	10.43	10.63	1	False	-1.07
63791	0.79	0.83	9.77	9.18	9.40	1	False	0.31
63798	0.65	0.70	11.46	10.90	11.09	1	False	0.29
63800	0.84	0.86	9.02	8.68	8.91	1	False	-0.77
63802	0.79	0.85	9.77	8.85	9.08	1	False	1.67
63808	0.76	0.77	10.17	10.04	10.25	1	False	-0.94
63823	0.62	0.62	11.78	11.78	11.95	1	False	-0.51
63845	0.80	0.83	9.63	9.18	9.40	1	False	-0.28
63856	0.68	0.69	11.13	11.02	11.21	1	False	-0.93
63869	0.66	0.69	11.35	11.02	11.21	1	False	-0.64
63890	0.84	0.84	9.02	9.02	9.24	1	False	-0.32
63902	0.59	0.59	12.09	12.09	12.26	1	False	-0.54
63931	0.78	0.81	9.91	9.49	9.70	1	False	-0.38
63935	0.51	0.51	12.90	12.90	13.06	1	False	-0.59
63942	0.72	0.74	10.67	10.43	10.63	1	False	-1.07
63947	0.53	0.58	12.70	12.19	12.36	1	False	0.17
63947	0.50	0.58	13.00	12.19	12.36	1	False	1.43
63947	0.53	0.58	12.70	12.19	12.36	1	False	0.17
63951	0.73	0.73	10.55	10.55	10.75	1	False	-0.43
63955	0.81	0.80	9.49	9.63	9.85	1	False	0.25
63961	0.88	0.86	8.30	8.68	8.91	1	False	1.30
63984	0.44	0.42	13.65	13.86	14.00	4	False	0.20
64003	0.84	0.86	9.02	8.68	8.91	1	False	-0.77
64010	0.83	0.82	9.18	9.34	9.56	1	False	0.31
64013	0.70	0.72	10.90	10.67	10.86	1	False	-1.09
64015	0.79	0.80	9.77	9.63	9.85	1	False	-0.95
64021	0.82	0.82	9.34	9.34	9.56	1	False	-0.34
64025	0.83	0.82	9.18	9.34	9.56	1	False	0.31
64025	0.82	0.82	9.34	9.34	9.56	1	False	-0.34
64029	0.59	0.58	12.09	12.19	12.36	1	False	-0.11
64050	0.63	0.64	11.67	11.57	11.75	1	False	-0.95
64052	0.44	0.53	13.60	12.70	12.86	1	False	1.88
64062	0.58	0.64	12.19	11.57	11.75	1	False	0.63
64069	0.64	0.76	11.57	10.17	10.38	1	True	3.75
64088	0.67	0.73	11.24	10.55	10.75	1	False	0.83
64090	0.60	0.61	11.99	11.88	12.06	1	False	-0.96
64098	0.65	0.69	11.46	11.02	11.21	1	False	-0.19
65399	0.75	0.73	10.30	10.55	10.75	1	False	0.61
65403	0.62	0.61	11.78	11.88	12.06	1	False	-0.08
65410	0.55	0.53	12.50	12.70	12.86	1	False	0.27
65425	0.72	0.75	10.67	10.30	10.50	1	False	-0.55
65429	0.68	0.63	11.13	11.67	11.85	1	False	1.78
65432	0.81	0.82	9.49	9.34	9.56	1	False	-0.97
65434	0.70	0.76	10.90	10.17	10.38	1	False	0.95
73319	0.58	0.60	12.19	11.99	12.16	1	False	-1.11
73321	0.76	0.74	10.17	10.43	10.63	1	False	0.64
73321	0.74	0.74	10.43	10.43	10.63	1	False	-0.42
73323	0.85	0.87	8.85	8.49	8.73	1	False	-0.71
73324	0.80	0.85	9.63	8.85	9.08	1	False	1.08
73326	0.69	0.74	11.02	10.43	10.63	1	False	0.39
73327	0.71	0.66	10.79	11.35	11.53	1	False	1.89
73327	0.72	0.66	10.67	11.35	11.53	1	False	2.38
73328	0.54	0.58	12.60	12.19	12.36	1	False	-0.26
73328	0.57	0.58	12.29	12.19	12.36	1	False	-0.97
73329	0.73	0.75	10.55	10.30	10.50	1	False	-1.06

continued

<i>IREF</i>	<i>OldP</i>	<i>NewP</i>	<i>OldDelta</i>	<i>NewDelta</i>	<i>Line</i>	<i>Max</i>	<i>Discard</i>	<i>Std</i>
73329	0.73	0.75	10.55	10.30	10.50	1	False	-1.06
73329	0.73	0.75	10.55	10.30	10.50	1	False	-1.06
73334	0.75	0.75	10.30	10.30	10.50	1	False	-0.41
73334	0.75	0.75	10.30	10.30	10.50	1	False	-0.41
73346	0.33	0.31	14.82	15.04	15.16	4	False	0.20
73349	0.58	0.56	12.19	12.40	12.56	1	False	0.30
73349	0.58	0.56	12.19	12.40	12.56	1	False	0.30
73349	0.54	0.56	12.60	12.40	12.56	1	False	-1.10
73406	0.65	0.73	11.46	10.55	10.75	1	False	1.75
73417	0.61	0.62	11.88	11.78	11.95	1	False	-0.95
73417	0.62	0.62	11.78	11.78	11.95	1	False	-0.51
73417	0.58	0.62	12.19	11.78	11.95	1	False	-0.25

**Table F-11. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Reading Grade 6**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
67430	0.87	0.85	8.49	8.85	8.93	1	False	0.54
67443	0.70	0.67	10.90	11.24	11.27	1	False	0.22
67444	0.85	0.83	8.85	9.18	9.25	1	False	0.37
67447	0.70	0.70	10.90	10.90	10.94	1	False	-1.25
67447	0.69	0.70	11.02	10.90	10.94	1	False	-1.04
67454	0.46	0.50	13.40	13.00	12.99	1	False	0.43
67456	0.72	0.75	10.67	10.30	10.35	1	False	0.02
67456	0.73	0.75	10.55	10.30	10.35	1	False	-0.51
67457	0.80	0.86	9.63	8.68	8.76	1	False	2.48
67457	0.85	0.86	8.85	8.68	8.76	1	False	-0.97
67457	0.84	0.86	9.02	8.68	8.76	1	False	-0.23
67730	0.88	0.90	8.30	7.87	7.97	1	False	0.06
67734	0.89	0.91	8.09	7.64	7.74	1	False	0.17
67747	0.84	0.84	9.02	9.02	9.10	1	False	-1.07
67748	0.82	0.84	9.34	9.02	9.10	1	False	-0.32
67748	0.82	0.84	9.34	9.02	9.10	1	False	-0.32
67759	0.56	0.60	12.40	11.99	12.00	1	False	0.37
67759	0.56	0.60	12.40	11.99	12.00	1	False	0.37
67760	0.81	0.79	9.49	9.77	9.83	1	False	0.13
67764	0.71	0.67	10.79	11.24	11.27	1	False	0.73
67764	0.70	0.67	10.90	11.24	11.27	1	False	0.22
67778	0.80	0.81	9.63	9.49	9.55	1	False	-1.03
67814	0.79	0.80	9.77	9.63	9.69	1	False	-1.04
67817	0.76	0.78	10.17	9.91	9.97	1	False	-0.47
67818	0.78	0.78	9.91	9.91	9.97	1	False	-1.15
67818	0.78	0.78	9.91	9.91	9.97	1	False	-1.15
67826	0.64	0.61	11.57	11.88	11.90	1	False	0.06
67829	0.85	0.85	8.85	8.85	8.93	1	False	-1.05
67835	0.80	0.74	9.63	10.43	10.47	1	False	2.31
67835	0.80	0.74	9.63	10.43	10.47	1	False	2.31
67839	0.63	0.64	11.67	11.57	11.59	1	False	-1.01
67840	0.63	0.63	11.67	11.67	11.69	1	False	-1.32
67854	0.82	0.84	9.34	9.02	9.10	1	False	-0.32
67859	0.66	0.72	11.35	10.67	10.71	1	False	1.45
67864	0.74	0.76	10.43	10.17	10.22	1	False	-0.50
67864	0.76	0.76	10.17	10.17	10.22	1	False	-1.18
67864	0.75	0.76	10.30	10.17	10.22	1	False	-1.05
67871	0.42	0.45	13.81	13.50	13.48	4	False	0.05
67956	0.78	0.76	9.91	10.17	10.22	1	False	-0.01
67956	0.78	0.76	9.91	10.17	10.22	1	False	-0.01
67958	0.49	0.51	13.10	12.90	12.89	1	False	-0.47
67958	0.48	0.51	13.20	12.90	12.89	1	False	-0.02
67964	0.89	0.89	8.09	8.09	8.19	1	False	-0.98
67968	0.70	0.72	10.90	10.67	10.71	1	False	-0.53
67975	0.48	0.47	13.20	13.30	13.28	1	False	-1.03
67975	0.48	0.47	13.20	13.30	13.28	1	False	-1.03
67978	0.53	0.50	12.70	13.00	12.99	1	False	-0.11
67981	0.74	0.68	10.43	11.13	11.16	1	False	1.85
67981	0.71	0.68	10.79	11.13	11.16	1	False	0.25
67981	0.71	0.68	10.79	11.13	11.16	1	False	0.25
68126	0.68	0.69	11.13	11.02	11.05	1	False	-1.03
68128	0.61	0.60	11.88	11.99	12.00	1	False	-0.89
68128	0.61	0.60	11.88	11.99	12.00	1	False	-0.89
68132	0.78	0.78	9.91	9.91	9.97	1	False	-1.15
68142	0.65	0.70	11.46	10.90	10.94	1	False	0.92

continued

<i>IREF</i>	<i>OldP</i>	<i>NewP</i>	<i>OldDelta</i>	<i>NewDelta</i>	<i>Line</i>	<i>Max</i>	<i>Discard</i>	<i>Std</i>
68147	0.69	0.68	11.02	11.13	11.16	1	False	-0.77
68147	0.69	0.68	11.02	11.13	11.16	1	False	-0.77
68153	0.60	0.58	11.99	12.19	12.20	1	False	-0.45
68153	0.59	0.58	12.09	12.19	12.20	1	False	-0.91
68163	0.71	0.68	10.79	11.13	11.16	1	False	0.25
68163	0.71	0.68	10.79	11.13	11.16	1	False	0.25
68340	0.76	0.80	10.17	9.63	9.69	1	False	0.74
68340	0.76	0.80	10.17	9.63	9.69	1	False	0.74
68344	0.50	0.55	13.00	12.50	12.50	1	False	0.83
68346	0.46	0.49	13.40	13.10	13.09	1	False	0.00
68346	0.46	0.49	13.40	13.10	13.09	1	False	0.00
68352	0.59	0.63	12.09	11.67	11.69	1	False	0.38
68355	0.73	0.69	10.55	11.02	11.05	1	False	0.82
68355	0.73	0.69	10.55	11.02	11.05	1	False	0.82
68357	0.61	0.60	11.88	11.99	12.00	1	False	-0.89
68364	0.62	0.67	11.78	11.24	11.27	1	False	0.87
68368	0.67	0.64	11.24	11.57	11.59	1	False	0.14
68368	0.67	0.64	11.24	11.57	11.59	1	False	0.14
68374	0.82	0.87	9.34	8.49	8.58	1	False	1.97
68374	0.82	0.87	9.34	8.49	8.58	1	False	1.97
68381	0.70	0.69	10.90	11.02	11.05	1	False	-0.75
68384	0.80	0.80	9.63	9.63	9.69	1	False	-1.13
68384	0.79	0.80	9.77	9.63	9.69	1	False	-1.04
68391	0.65	0.56	11.46	12.40	12.40	1	False	2.77
68391	0.61	0.56	11.88	12.40	12.40	1	False	0.89
68391	0.60	0.56	11.99	12.40	12.40	1	False	0.43
68399	0.37	0.44	14.38	13.58	13.56	4	False	2.26

**Table F-12. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Reading Grade 7**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
67597	0.58	0.59	12.19	12.09	12.23	1	False	-1.04
67603	0.70	0.72	10.90	10.67	10.88	1	False	-1.09
67608	0.77	0.81	10.04	9.49	9.76	1	False	-0.28
67608	0.77	0.81	10.04	9.49	9.76	1	False	-0.28
67630	0.69	0.67	11.02	11.24	11.42	1	False	0.11
67651	0.79	0.80	9.77	9.63	9.90	1	False	-0.76
67651	0.79	0.80	9.77	9.63	9.90	1	False	-0.76
67660	0.71	0.71	10.79	10.79	10.99	1	False	-0.51
67660	0.71	0.71	10.79	10.79	10.99	1	False	-0.51
67682	0.76	0.83	10.17	9.18	9.47	1	False	1.02
67959	0.79	0.81	9.77	9.49	9.76	1	False	-1.12
67965	0.85	0.84	8.85	9.02	9.32	1	False	0.29
67980	0.80	0.76	9.63	10.17	10.41	1	False	1.26
67984	0.78	0.78	9.91	9.91	10.16	1	False	-0.37
67987	0.51	0.55	12.90	12.50	12.61	1	False	-0.27
68020	0.88	0.89	8.30	8.09	8.44	1	False	-0.72
68020	0.88	0.89	8.30	8.09	8.44	1	False	-0.72
68020	0.88	0.89	8.30	8.09	8.44	1	False	-0.72
68044	0.84	0.72	9.02	10.67	10.88	1	True	4.61
68108	0.90	0.92	7.87	7.38	7.76	1	False	-0.82
68129	0.73	0.78	10.55	9.91	10.16	1	False	0.04
68136	0.66	0.71	11.35	10.79	10.99	1	False	-0.05
68160	0.82	0.88	9.34	8.30	8.64	1	False	1.02
68160	0.82	0.88	9.34	8.30	8.64	1	False	1.02
68164	0.72	0.77	10.67	10.04	10.29	1	False	0.02
68167	0.68	0.72	11.13	10.67	10.88	1	False	-0.39
68167	0.68	0.72	11.13	10.67	10.88	1	False	-0.39
68180	0.63	0.68	11.67	11.13	11.32	1	False	-0.05
68180	0.62	0.68	11.78	11.13	11.32	1	False	0.27
68192	0.62	0.67	11.78	11.24	11.42	1	False	-0.05
68195	0.66	0.72	11.35	10.67	10.88	1	False	0.30
68198	0.46	0.57	13.40	12.29	12.42	1	False	1.88
68201	0.67	0.72	11.24	10.67	10.88	1	False	-0.04
68203	0.72	0.76	10.67	10.17	10.41	1	False	-0.36
68209	0.47	0.46	13.30	13.40	13.47	4	False	-0.63
68416	0.83	0.87	9.18	8.49	8.82	1	False	-0.03
68426	0.66	0.74	11.35	10.43	10.65	1	False	1.01
68446	0.66	0.72	11.35	10.67	10.88	1	False	0.30
68449	0.59	0.58	12.09	12.19	12.33	1	False	-0.42
68461	0.78	0.79	9.91	9.77	10.03	1	False	-0.77
68463	0.72	0.80	10.67	9.63	9.90	1	False	1.23
68464	0.90	0.92	7.87	7.38	7.76	1	False	-0.82
68593	0.58	0.59	12.19	12.09	12.23	1	False	-1.04
68593	0.60	0.59	11.99	12.09	12.23	1	False	-0.41
68597	0.71	0.74	10.79	10.43	10.65	1	False	-0.74
68598	0.83	0.78	9.18	9.91	10.16	1	False	1.88
68600	0.77	0.79	10.04	9.77	10.03	1	False	-1.12
68601	0.72	0.69	10.67	11.02	11.21	1	False	0.53
68604	0.83	0.85	9.18	8.85	9.16	1	False	-1.09
68605	0.52	0.52	12.80	12.80	12.90	1	False	-0.84
68622	0.83	0.81	9.18	9.49	9.76	1	False	0.64
68624	0.73	0.72	10.55	10.67	10.88	1	False	-0.12
68625	0.72	0.67	10.67	11.24	11.42	1	False	1.18
68627	0.58	0.55	12.19	12.50	12.61	1	False	0.15
68630	0.56	0.57	12.40	12.29	12.42	1	False	-1.07

continued

<i>IREF</i>	<i>OldP</i>	<i>NewP</i>	<i>OldDelta</i>	<i>NewDelta</i>	<i>Line</i>	<i>Max</i>	<i>Discard</i>	<i>Std</i>
68632	0.76	0.75	10.17	10.30	10.53	1	False	-0.04
68633	0.51	0.54	12.90	12.60	12.71	1	False	-0.57
68634	0.62	0.64	11.78	11.57	11.73	1	False	-1.01
68634	0.62	0.64	11.78	11.57	11.73	1	False	-1.01
68634	0.61	0.64	11.88	11.57	11.73	1	False	-0.69
68637	0.82	0.81	9.34	9.49	9.76	1	False	0.16
68641	0.70	0.65	10.90	11.46	11.63	1	False	1.10
68644	0.71	0.75	10.79	10.30	10.53	1	False	-0.37
68647	0.58	0.70	12.19	10.90	11.10	1	False	2.22
68650	0.45	0.38	13.55	14.20	14.22	4	False	0.92
68650	0.45	0.38	13.55	14.20	14.22	4	False	0.92

**Table F-13. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Reading Grade 8**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
67917	0.76	0.74	10.17	10.43	10.62	1	False	0.62
67919	0.71	0.72	10.79	10.67	10.85	1	False	-0.99
67926	0.58	0.61	12.19	11.88	12.01	1	False	-0.51
67930	0.75	0.70	10.30	10.90	11.08	1	False	2.02
67933	0.62	0.63	11.78	11.67	11.81	1	False	-1.14
67934	0.74	0.70	10.43	10.90	11.08	1	False	1.49
67936	0.61	0.65	11.88	11.46	11.61	1	False	-0.11
67936	0.58	0.65	12.19	11.46	11.61	1	False	1.21
67974	0.73	0.69	10.55	11.02	11.19	1	False	1.43
67982	0.68	0.67	11.13	11.24	11.40	1	False	-0.13
67982	0.68	0.67	11.13	11.24	11.40	1	False	-0.13
67986	0.53	0.52	12.70	12.80	12.89	1	False	-0.48
67993	0.80	0.76	9.63	10.17	10.38	1	False	1.90
67995	0.74	0.70	10.43	10.90	11.08	1	False	1.49
68001	0.80	0.81	9.63	9.49	9.73	1	False	-0.88
68007	0.87	0.87	8.49	8.49	8.78	1	False	-0.07
68065	0.82	0.85	9.34	8.85	9.12	1	False	-0.35
68068	0.78	0.79	9.91	9.77	10.00	1	False	-0.90
68078	0.75	0.75	10.30	10.30	10.50	1	False	-0.42
68085	0.80	0.83	9.63	9.18	9.44	1	False	-0.43
68088	0.80	0.83	9.63	9.18	9.44	1	False	-0.43
68098	0.86	0.89	8.68	8.09	8.40	1	False	-0.07
68100	0.63	0.69	11.67	11.02	11.19	1	False	0.79
68106	0.80	0.83	9.63	9.18	9.44	1	False	-0.43
68109	0.71	0.76	10.79	10.17	10.38	1	False	0.44
68111	0.64	0.71	11.57	10.79	10.97	1	False	1.28
68111	0.64	0.71	11.57	10.79	10.97	1	False	1.28
68116	0.65	0.67	11.46	11.24	11.40	1	False	-1.02
68116	0.65	0.67	11.46	11.24	11.40	1	False	-1.02
68117	0.81	0.86	9.49	8.68	8.95	1	False	1.00
68117	0.83	0.86	9.18	8.68	8.95	1	False	-0.30
68125	0.47	0.50	13.28	13.05	13.13	4	False	-0.64
68353	0.75	0.77	10.30	10.04	10.26	1	False	-1.09
68354	0.75	0.77	10.30	10.04	10.26	1	False	-1.09
68356	0.68	0.65	11.13	11.46	11.61	1	False	0.76
68367	0.68	0.70	11.13	10.90	11.08	1	False	-1.05
68367	0.68	0.70	11.13	10.90	11.08	1	False	-1.05
68372	0.83	0.83	9.18	9.18	9.44	1	False	-0.21
68372	0.84	0.83	9.02	9.18	9.44	1	False	0.48
68378	0.81	0.80	9.49	9.63	9.87	1	False	0.32
68386	0.79	0.84	9.77	9.02	9.28	1	False	0.82
68521	0.71	0.70	10.79	10.90	11.08	1	False	-0.04
68521	0.67	0.70	11.24	10.90	11.08	1	False	-0.58
68523	0.61	0.66	11.88	11.35	11.50	1	False	0.33
68523	0.63	0.66	11.67	11.35	11.50	1	False	-0.56
68525	0.73	0.75	10.55	10.30	10.50	1	False	-1.08
68526	0.80	0.80	9.63	9.63	9.87	1	False	-0.29
68529	0.69	0.72	11.02	10.67	10.85	1	False	-0.58
68530	0.78	0.78	9.91	9.91	10.13	1	False	-0.35
68530	0.78	0.78	9.91	9.91	10.13	1	False	-0.35
68531	0.60	0.58	11.99	12.19	12.31	1	False	0.09
68532	0.73	0.71	10.55	10.79	10.97	1	False	0.50
68533	0.59	0.61	12.09	11.88	12.01	1	False	-0.95
68535	0.75	0.76	10.30	10.17	10.38	1	False	-0.94
68540	0.80	0.82	9.63	9.34	9.58	1	False	-1.06

continued

<i>IREF</i>	<i>OldP</i>	<i>NewP</i>	<i>OldDelta</i>	<i>NewDelta</i>	<i>Line</i>	<i>Max</i>	<i>Discard</i>	<i>Std</i>
68541	0.87	0.85	8.49	8.85	9.12	1	False	1.39
68545	0.49	0.49	13.15	13.13	13.20	4	False	-1.07
68696	0.78	0.79	9.91	9.77	10.00	1	False	-0.90
68698	0.66	0.66	11.35	11.35	11.50	1	False	-0.62
68700	0.86	0.92	8.68	7.38	7.71	1	False	2.83
68702	0.64	0.66	11.57	11.35	11.50	1	False	-1.01
68706	0.66	0.76	11.35	10.17	10.38	1	False	2.84
68714	0.74	0.77	10.43	10.04	10.26	1	False	-0.56
68725	0.76	0.81	10.17	9.49	9.73	1	False	0.63

**Table F-14. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Reading Grade 10**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
65879	0.73	0.74	10.55	10.43	10.60	1	False	-1.10
65882	0.61	0.61	11.88	11.88	12.06	1	False	-0.62
65882	0.60	0.61	11.99	11.88	12.06	1	False	-1.05
65884	0.79	0.79	9.77	9.77	9.95	1	False	-0.60
65885	0.52	0.61	12.80	11.88	12.06	1	False	1.71
65887	0.79	0.76	9.77	10.17	10.35	1	False	1.04
65893	0.67	0.74	11.24	10.43	10.60	1	False	1.27
65897	0.54	0.58	12.60	12.19	12.36	1	False	-0.37
65926	0.74	0.73	10.43	10.55	10.73	1	False	-0.11
65937	0.79	0.79	9.77	9.77	9.95	1	False	-0.60
65948	0.74	0.75	10.43	10.30	10.48	1	False	-1.11
65956	0.65	0.64	11.46	11.57	11.74	1	False	-0.18
65967	0.52	0.48	12.80	13.20	13.37	1	False	1.00
65974	0.78	0.77	9.91	10.04	10.22	1	False	-0.05
65993	0.82	0.81	9.34	9.49	9.67	1	False	0.02
65995	0.55	0.50	12.50	13.00	13.17	1	False	1.41
65996	0.86	0.87	8.68	8.49	8.68	1	False	-1.33
65997	0.58	0.58	12.19	12.19	12.36	1	False	-0.63
66036	0.78	0.78	9.91	9.91	10.09	1	False	-0.60
66054	0.68	0.73	11.13	10.55	10.73	1	False	0.32
66062	0.77	0.78	10.04	9.91	10.09	1	False	-1.14
66066	0.75	0.76	10.30	10.17	10.35	1	False	-1.12
66073	0.82	0.82	9.34	9.34	9.52	1	False	-0.59
66073	0.82	0.82	9.34	9.34	9.52	1	False	-0.59
66077	0.82	0.76	9.34	10.17	10.35	1	False	2.82
66077	0.79	0.76	9.77	10.17	10.35	1	False	1.04
66081	0.50	0.51	13.00	12.90	13.07	1	False	-1.05
66084	0.70	0.71	10.90	10.79	10.96	1	False	-1.08
66095	0.78	0.75	9.91	10.30	10.48	1	False	1.00
66130	0.45	0.41	13.55	13.94	14.10	4	False	0.91
66181	0.73	0.70	10.55	10.90	11.08	1	False	0.83
66181	0.72	0.70	10.67	10.90	11.08	1	False	0.34
66186	0.83	0.86	9.18	8.68	8.86	1	False	-0.02
66189	0.88	0.88	8.30	8.30	8.49	1	False	-0.57
66207	0.86	0.88	8.68	8.30	8.49	1	False	-0.54
66215	0.67	0.65	11.24	11.46	11.63	1	False	0.27
66221	0.70	0.77	10.90	10.04	10.22	1	False	1.44
66226	0.60	0.64	11.99	11.57	11.74	1	False	-0.32
66435	0.77	0.81	10.04	9.49	9.67	1	False	0.20
66479	0.62	0.67	11.78	11.24	11.42	1	False	0.15
66508	0.75	0.80	10.30	9.63	9.81	1	False	0.66
66549	0.66	0.68	11.35	11.13	11.30	1	False	-1.14
66552	0.67	0.68	11.24	11.13	11.30	1	False	-1.07
66554	0.62	0.72	11.78	10.67	10.85	1	False	2.48
66560	0.71	0.73	10.79	10.55	10.73	1	False	-1.08
66579	0.84	0.84	9.02	9.02	9.20	1	False	-0.58
66588	0.65	0.72	11.46	10.67	10.85	1	False	1.18
66596	0.78	0.78	9.91	9.91	10.09	1	False	-0.60
66596	0.75	0.78	10.30	9.91	10.09	1	False	-0.47
66600	0.72	0.76	10.67	10.17	10.35	1	False	-0.04
66600	0.72	0.76	10.67	10.17	10.35	1	False	-0.04
66610	0.89	0.90	8.09	7.87	8.06	1	False	-1.19
66639	0.52	0.52	12.82	12.77	12.94	4	False	-0.84
67460	0.63	0.67	11.67	11.24	11.42	1	False	-0.28
67470	0.75	0.79	10.30	9.77	9.95	1	False	0.09

continued

<i>IREF</i>	<i>OldP</i>	<i>NewP</i>	<i>OldDelta</i>	<i>NewDelta</i>	<i>Line</i>	<i>Max</i>	<i>Discard</i>	<i>Std</i>
67488	0.66	0.69	11.35	11.02	11.19	1	False	-0.69
67511	0.69	0.69	11.02	11.02	11.19	1	False	-0.61
67521	0.72	0.78	10.67	9.91	10.09	1	False	1.03
67549	0.79	0.83	9.77	9.18	9.37	1	False	0.34
67582	0.67	0.66	11.24	11.35	11.52	1	False	-0.17
67582	0.55	0.66	12.50	11.35	11.52	1	False	2.65

**Table F-15. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Science Grade 4**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
52576	0.52	0.53	12.80	12.70	12.55	1	False	-0.24
52576	0.53	0.53	12.70	12.70	12.55	1	False	-0.66
52578	0.82	0.88	9.34	8.30	8.57	1	False	1.93
52578	0.80	0.88	9.63	8.30	8.57	1	True	3.16
52582	0.52	0.55	12.80	12.50	12.36	1	False	0.53
52582	0.55	0.55	12.50	12.50	12.36	1	False	-0.74
52593	0.63	0.64	11.67	11.57	11.52	1	False	-0.67
52593	0.62	0.64	11.78	11.57	11.52	1	False	-0.23
52597	0.77	0.78	10.04	9.91	10.03	1	False	-1.22
52597	0.76	0.78	10.17	9.91	10.03	1	False	-0.67
53099	0.83	0.85	9.18	8.85	9.07	1	False	-0.82
53099	0.83	0.85	9.18	8.85	9.07	1	False	-0.82
53170	0.50	0.51	13.00	12.90	12.73	1	False	-0.16
53170	0.52	0.51	12.80	12.90	12.73	1	False	-1.00
53264	0.71	0.67	10.79	11.24	11.23	1	False	0.55
53264	0.68	0.67	11.13	11.24	11.23	1	False	-0.89
53309	0.76	0.75	10.17	10.30	10.38	1	False	-0.45
53309	0.73	0.75	10.55	10.30	10.38	1	False	-0.59
53676	0.67	0.68	11.24	11.13	11.13	1	False	-0.82
53676	0.66	0.68	11.35	11.13	11.13	1	False	-0.36
53890	0.70	0.62	10.90	11.78	11.71	1	False	2.10
53890	0.66	0.62	11.35	11.78	11.71	1	False	0.22
54009	0.79	0.77	9.77	10.04	10.15	1	False	0.26
54009	0.80	0.77	9.63	10.04	10.15	1	False	0.85
54796	0.65	0.65	11.46	11.46	11.42	1	False	-1.16
54796	0.65	0.65	11.46	11.46	11.42	1	False	-1.16
54862	0.64	0.62	11.59	11.75	11.69	4	False	-0.90
54862	0.65	0.62	11.49	11.75	11.69	4	False	-0.45
55556	0.62	0.55	11.78	12.50	12.36	1	False	1.15
55556	0.63	0.55	11.67	12.50	12.36	1	False	1.60
55567	0.83	0.89	9.18	8.09	8.38	1	False	2.06
55567	0.84	0.89	9.02	8.09	8.38	1	False	1.38
55572	0.92	0.93	7.38	7.10	7.48	1	False	-0.88
55572	0.91	0.93	7.64	7.10	7.48	1	False	-0.65
55586	0.75	0.73	10.30	10.55	10.60	1	False	-0.04
55586	0.72	0.73	10.67	10.55	10.60	1	False	-1.02
55608	0.78	0.82	9.91	9.34	9.51	1	False	0.39
55608	0.81	0.82	9.49	9.34	9.51	1	False	-1.22
55618	0.68	0.65	11.13	11.46	11.42	1	False	-0.06
55618	0.67	0.65	11.24	11.46	11.42	1	False	-0.53
55625	0.57	0.55	12.29	12.50	12.36	1	False	-1.01
55625	0.58	0.55	12.19	12.50	12.36	1	False	-0.58
55778	0.46	0.39	13.40	14.12	13.83	1	False	0.49
55778	0.44	0.39	13.60	14.12	13.83	1	False	-0.36
55877	0.69	0.66	11.02	11.35	11.33	1	False	0.00
55877	0.65	0.66	11.46	11.35	11.33	1	False	-0.75
55938	0.54	0.53	12.60	12.70	12.55	1	False	-1.08
55938	0.57	0.53	12.29	12.70	12.55	1	False	-0.25
56025	0.64	0.68	11.57	11.13	11.13	1	False	0.54
56025	0.66	0.68	11.35	11.13	11.13	1	False	-0.36
56025	0.66	0.68	11.35	11.13	11.13	1	False	-0.36
56048	0.76	0.77	10.17	10.04	10.15	1	False	-1.18
56048	0.75	0.77	10.30	10.04	10.15	1	False	-0.65
56076	0.67	0.66	11.24	11.35	11.33	1	False	-0.94
56076	0.65	0.66	11.46	11.35	11.33	1	False	-0.75

continued

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
56130	0.72	0.71	10.67	10.79	10.82	1	False	-0.68
56130	0.71	0.71	10.79	10.79	10.82	1	False	-1.18
56148	0.61	0.55	11.88	12.50	12.36	1	False	0.71
56148	0.59	0.55	12.09	12.50	12.36	1	False	-0.15
56155	0.67	0.64	11.24	11.57	11.52	1	False	-0.12
56155	0.63	0.64	11.67	11.57	11.52	1	False	-0.67
56166	0.84	0.85	9.02	8.85	9.07	1	False	-1.10
56166	0.83	0.85	9.18	8.85	9.07	1	False	-0.82
56192	0.83	0.79	9.18	9.77	9.90	1	False	1.71
56192	0.82	0.79	9.34	9.77	9.90	1	False	1.06
56232	0.72	0.74	10.67	10.43	10.49	1	False	-0.56
56232	0.71	0.74	10.79	10.43	10.49	1	False	-0.06
56252	0.83	0.83	9.18	9.18	9.37	1	False	-0.53
56252	0.79	0.83	9.77	9.18	9.37	1	False	0.41
56252	0.79	0.83	9.77	9.18	9.37	1	False	0.41
56260	0.88	0.87	8.30	8.49	8.74	1	False	0.56
56260	0.86	0.87	8.68	8.49	8.74	1	False	-1.03
56264	0.59	0.61	12.09	11.88	11.81	1	False	-0.12
56264	0.55	0.61	12.50	11.88	11.81	1	False	1.59
56313	0.69	0.57	11.02	12.29	12.18	1	True	3.58
56313	0.64	0.57	11.57	12.29	12.18	1	True	1.27
56337	0.67	0.63	11.24	11.67	11.62	1	False	0.28
56337	0.66	0.63	11.35	11.67	11.62	1	False	-0.18
56342	0.75	0.75	10.30	10.30	10.38	1	False	-0.98
56342	0.76	0.75	10.17	10.30	10.38	1	False	-0.45
56385	0.78	0.82	9.91	9.34	9.51	1	False	0.39
56385	0.73	0.82	10.55	9.34	9.51	1	True	3.06
56387	0.62	0.66	11.78	11.35	11.33	1	False	0.59
56387	0.61	0.66	11.88	11.35	11.33	1	False	1.03
56433	0.66	0.63	11.35	11.67	11.62	1	False	-0.18
56433	0.63	0.63	11.67	11.67	11.62	1	False	-1.07
56672	0.69	0.72	11.02	10.67	10.71	1	False	-0.02
56672	0.68	0.72	11.13	10.67	10.71	1	False	0.46
56917	0.74	0.70	10.43	10.90	10.92	1	False	0.77
56917	0.72	0.70	10.67	10.90	10.92	1	False	-0.24
56928	0.67	0.68	11.24	11.13	11.13	1	False	-0.82
56928	0.64	0.68	11.57	11.13	11.13	1	False	0.54
56936	0.52	0.54	12.80	12.60	12.45	1	False	0.14
56936	0.52	0.54	12.80	12.60	12.45	1	False	0.14
56968	0.70	0.74	10.90	10.43	10.49	1	False	0.42
56968	0.70	0.74	10.90	10.43	10.49	1	False	0.42
57858	0.68	0.69	11.13	11.02	11.02	1	False	-0.86
57858	0.67	0.69	11.24	11.02	11.02	1	False	-0.40
57892	0.58	0.60	12.19	11.99	11.90	1	False	-0.08
57892	0.58	0.60	12.19	11.99	11.90	1	False	-0.08
57904	0.81	0.80	9.49	9.63	9.77	1	False	-0.10
57904	0.82	0.80	9.34	9.63	9.77	1	False	0.53
57961	0.76	0.76	10.17	10.17	10.26	1	False	-0.93
57961	0.75	0.76	10.30	10.17	10.26	1	False	-1.14
57966	0.93	0.91	7.10	7.64	7.97	1	False	2.36
57966	0.92	0.91	7.38	7.64	7.97	1	False	1.17
57985	0.82	0.80	9.34	9.63	9.77	1	False	0.53
57985	0.81	0.80	9.49	9.63	9.77	1	False	-0.10

**Table F-16. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Science Grade 8**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
39467	0.67	0.64	11.24	11.57	11.66	1	False	0.42
39478	0.75	0.67	10.30	11.24	11.36	1	False	2.83
39493	0.86	0.80	8.68	9.63	9.85	1	True	3.25
39582	0.86	0.89	8.68	8.09	8.40	1	False	-0.12
39895	0.92	0.87	7.38	8.49	8.77	1	True	4.12
53103	0.61	0.64	11.88	11.57	11.66	1	False	-0.36
53103	0.62	0.64	11.78	11.57	11.66	1	False	-0.76
53103	0.63	0.64	11.67	11.57	11.66	1	False	-1.16
53162	0.82	0.83	9.34	9.18	9.42	1	False	-0.87
53162	0.85	0.83	8.85	9.18	9.42	1	False	0.97
53194	0.57	0.56	12.29	12.40	12.45	1	False	-0.61
53194	0.56	0.56	12.40	12.40	12.45	1	False	-1.00
53202	0.85	0.89	8.85	8.09	8.40	1	False	0.55
53202	0.84	0.89	9.02	8.09	8.40	1	False	1.19
53241	0.41	0.44	13.91	13.60	13.58	1	False	0.06
53241	0.39	0.44	14.12	13.60	13.58	1	False	0.85
53373	0.40	0.37	14.01	14.33	14.26	1	False	-0.24
53373	0.36	0.37	14.43	14.33	14.26	1	False	-0.54
53389	0.70	0.71	10.90	10.79	10.93	1	False	-1.08
53389	0.70	0.71	10.90	10.79	10.93	1	False	-1.08
53514	0.64	0.70	11.57	10.90	11.04	1	False	0.81
53514	0.62	0.70	11.78	10.90	11.04	1	False	1.62
53522	0.62	0.61	11.78	11.88	11.96	1	False	-0.49
53522	0.61	0.61	11.88	11.88	11.96	1	False	-0.89
54104	0.50	0.49	13.00	13.10	13.11	1	False	-0.78
54104	0.49	0.49	13.10	13.10	13.11	1	False	-1.16
54126	0.74	0.72	10.43	10.67	10.82	1	False	0.31
54126	0.73	0.72	10.55	10.67	10.82	1	False	-0.16
54126	0.74	0.72	10.43	10.67	10.82	1	False	0.31
54138	0.81	0.85	9.49	8.85	9.11	1	False	0.24
54138	0.80	0.85	9.63	8.85	9.11	1	False	0.79
54138	0.79	0.85	9.77	8.85	9.11	1	False	1.33
54192	0.67	0.63	11.24	11.67	11.76	1	False	0.81
54192	0.66	0.63	11.35	11.67	11.76	1	False	0.39
54214	0.65	0.64	11.46	11.57	11.66	1	False	-0.41
54214	0.65	0.64	11.46	11.57	11.66	1	False	-0.41
54223	0.84	0.84	9.02	9.02	9.27	1	False	-0.24
54223	0.84	0.84	9.02	9.02	9.27	1	False	-0.24
54242	0.51	0.50	12.90	13.00	13.01	1	False	-0.76
54242	0.54	0.50	12.60	13.00	13.01	1	False	0.39
54257	0.82	0.89	9.34	8.09	8.40	1	False	2.39
54257	0.81	0.89	9.49	8.09	8.40	1	False	2.96
54302	0.62	0.61	11.78	11.88	11.96	1	False	-0.49
54302	0.62	0.61	11.78	11.88	11.96	1	False	-0.49
54329	0.52	0.58	12.80	12.19	12.25	1	False	0.88
54329	0.51	0.58	12.90	12.19	12.25	1	False	1.27
54329	0.51	0.58	12.90	12.19	12.25	1	False	1.27
54467	0.35	0.34	14.54	14.65	14.57	1	False	-1.09
54467	0.36	0.34	14.43	14.65	14.57	1	False	-0.69
54472	0.78	0.80	9.91	9.63	9.85	1	False	-0.94
54472	0.80	0.80	9.63	9.63	9.85	1	False	-0.38
54480	0.67	0.72	11.24	10.67	10.82	1	False	0.41
54480	0.69	0.72	11.02	10.67	10.82	1	False	-0.44
54502	0.78	0.79	9.91	9.77	9.98	1	False	-0.93
54502	0.77	0.79	10.04	9.77	9.98	1	False	-0.94

continued

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
54502	0.76	0.79	10.17	9.77	9.98	1	False	-0.44
54515	0.90	0.92	7.87	7.38	7.73	1	False	-0.63
54515	0.90	0.92	7.87	7.38	7.73	1	False	-0.63
54731	0.56	0.60	12.40	11.99	12.06	1	False	0.09
54731	0.57	0.60	12.29	11.99	12.06	1	False	-0.30
54922	0.73	0.69	10.55	11.02	11.15	1	False	1.09
54922	0.71	0.69	10.79	11.02	11.15	1	False	0.18
54934	0.59	0.61	12.09	11.88	11.96	1	False	-0.71
54934	0.59	0.61	12.09	11.88	11.96	1	False	-0.71
56777	0.42	0.40	13.81	14.07	14.02	4	False	-0.40
56777	0.42	0.40	13.81	14.07	14.02	4	False	-0.40
56782	0.67	0.67	11.24	11.24	11.36	1	False	-0.74
56782	0.67	0.67	11.24	11.24	11.36	1	False	-0.74
56803	0.65	0.62	11.46	11.78	11.86	1	False	0.35
56803	0.62	0.62	11.78	11.78	11.86	1	False	-0.86
56807	0.54	0.55	12.60	12.50	12.54	1	False	-0.97
56807	0.56	0.55	12.40	12.50	12.54	1	False	-0.64
56808	0.44	0.42	13.60	13.81	13.77	1	False	-0.54
56808	0.40	0.42	14.01	13.81	13.77	1	False	-0.28
56811	0.49	0.46	13.10	13.40	13.39	1	False	-0.08
56811	0.48	0.46	13.20	13.40	13.39	1	False	-0.46
56820	0.67	0.66	11.24	11.35	11.46	1	False	-0.35
56820	0.68	0.66	11.13	11.35	11.46	1	False	0.07
56822	0.82	0.81	9.34	9.49	9.71	1	False	0.22
56822	0.81	0.81	9.49	9.49	9.71	1	False	-0.35
56835	0.48	0.51	13.20	12.90	12.92	1	False	-0.12
56835	0.49	0.51	13.10	12.90	12.92	1	False	-0.50
56843	0.89	0.93	8.09	7.10	7.46	1	False	1.22
56843	0.89	0.93	8.09	7.10	7.46	1	False	1.22
56856	0.31	0.35	14.98	14.54	14.46	1	False	0.79
56856	0.33	0.35	14.76	14.54	14.46	1	False	-0.07
56857	0.60	0.59	11.99	12.09	12.16	1	False	-0.54
56857	0.61	0.59	11.88	12.09	12.16	1	False	-0.14
56862	0.66	0.68	11.35	11.13	11.25	1	False	-0.82
56862	0.68	0.68	11.13	11.13	11.25	1	False	-0.72
56880	0.43	0.43	13.71	13.71	13.68	1	False	-1.08
56880	0.45	0.43	13.50	13.71	13.68	1	False	-0.52
56884	0.53	0.54	12.70	12.60	12.64	1	False	-0.95
56884	0.53	0.54	12.70	12.60	12.64	1	False	-0.95
56986	0.74	0.76	10.43	10.17	10.36	1	False	-0.92
56986	0.74	0.76	10.43	10.17	10.36	1	False	-0.92
56995	0.22	0.26	16.09	15.57	15.44	1	False	1.30
56995	0.22	0.26	16.09	15.57	15.44	1	False	1.30
56998	0.55	0.51	12.50	12.90	12.92	1	False	0.42
56998	0.55	0.51	12.50	12.90	12.92	1	False	0.42
57002	0.46	0.50	13.40	13.00	13.01	1	False	0.29
57002	0.47	0.50	13.30	13.00	13.01	1	False	-0.10
57004	0.52	0.54	12.80	12.60	12.64	1	False	-0.57
57004	0.52	0.54	12.80	12.60	12.64	1	False	-0.57
57008	0.70	0.70	10.90	10.90	11.04	1	False	-0.67

**Table F-17. 2008-09 MontCAS: Delta Analyses—
by Grade and Content Area—Science Grade 10**

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
52279	0.68	0.70	11.13	10.90	11.06	1	False	-0.84
52279	0.71	0.70	10.79	10.90	11.06	1	False	-0.10
52280	0.65	0.63	11.46	11.67	11.78	1	False	0.10
52280	0.66	0.63	11.35	11.67	11.78	1	False	0.51
52284	0.77	0.76	10.04	10.17	10.37	1	False	0.13
52284	0.75	0.76	10.30	10.17	10.37	1	False	-0.85
52285	0.81	0.76	9.49	10.17	10.37	1	False	2.25
52285	0.81	0.76	9.49	10.17	10.37	1	False	2.25
52288	0.68	0.65	11.13	11.46	11.58	1	False	0.59
52288	0.66	0.65	11.35	11.46	11.58	1	False	-0.26
52929	0.83	0.88	9.18	8.30	8.61	1	False	1.05
52929	0.81	0.88	9.49	8.30	8.61	1	False	2.22
52932	0.54	0.54	12.60	12.60	12.65	1	False	-0.94
52932	0.51	0.54	12.90	12.60	12.65	1	False	-0.15
52949	0.42	0.39	13.81	14.12	14.07	1	False	-0.12
52949	0.43	0.39	13.71	14.12	14.07	1	False	0.27
52957	0.36	0.37	14.43	14.33	14.27	1	False	-0.49
52957	0.33	0.37	14.76	14.33	14.27	1	False	0.75
52971	0.67	0.63	11.24	11.67	11.78	1	False	0.93
52971	0.67	0.63	11.24	11.67	11.78	1	False	0.93
52972	0.29	0.28	15.21	15.33	15.21	1	False	-1.11
52972	0.31	0.28	14.98	15.33	15.21	1	False	-0.26
52981	0.30	0.28	15.10	15.33	15.21	1	False	-0.69
52981	0.30	0.28	15.10	15.33	15.21	1	False	-0.69
52981	0.29	0.28	15.21	15.33	15.21	1	False	-1.11
52987	0.59	0.60	12.09	11.99	12.07	1	False	-1.06
52987	0.58	0.60	12.19	11.99	12.07	1	False	-0.66
52991	0.32	0.42	14.87	13.81	13.78	1	True	3.04
52991	0.33	0.42	14.76	13.81	13.78	1	True	2.62
52992	0.49	0.48	13.10	13.20	13.21	1	False	-0.70
52992	0.47	0.48	13.30	13.20	13.21	1	False	-0.78
53181	0.52	0.49	12.80	13.10	13.12	1	False	0.09
53181	0.51	0.49	12.90	13.10	13.12	1	False	-0.29
53203	0.81	0.82	9.49	9.34	9.59	1	False	-0.74
53203	0.79	0.82	9.77	9.34	9.59	1	False	-0.41
53324	0.76	0.78	10.17	9.91	10.13	1	False	-0.93
53324	0.75	0.78	10.30	9.91	10.13	1	False	-0.45
53370	0.46	0.40	13.40	14.01	13.97	1	False	1.06
53370	0.41	0.40	13.91	14.01	13.97	1	False	-0.88
53394	0.75	0.77	10.30	10.04	10.25	1	False	-0.93
53394	0.76	0.77	10.17	10.04	10.25	1	False	-0.83
53394	0.75	0.77	10.30	10.04	10.25	1	False	-0.93
53400	0.73	0.75	10.55	10.30	10.49	1	False	-0.91
53400	0.74	0.75	10.43	10.30	10.49	1	False	-0.87
53559	0.72	0.72	10.67	10.67	10.84	1	False	-0.48
53559	0.73	0.72	10.55	10.67	10.84	1	False	-0.03
53577	0.82	0.83	9.34	9.18	9.44	1	False	-0.73
53577	0.80	0.83	9.63	9.18	9.44	1	False	-0.39
53725	0.44	0.44	13.60	13.60	13.59	1	False	-1.07
53725	0.42	0.44	13.81	13.60	13.59	1	False	-0.29
53733	0.65	0.61	11.46	11.88	11.97	1	False	0.85
53733	0.63	0.61	11.67	11.88	11.97	1	False	0.03
53763	0.58	0.60	12.19	11.99	12.07	1	False	-0.66
53763	0.56	0.60	12.40	11.99	12.07	1	False	0.11
53768	0.56	0.48	12.40	13.20	13.21	1	False	1.99

continued

IREF	OldP	NewP	OldDelta	NewDelta	Line	Max	Discard	Std
53768	0.53	0.48	12.70	13.20	13.21	1	False	0.83
53793	0.46	0.49	13.40	13.10	13.12	1	False	-0.04
53793	0.42	0.49	13.81	13.10	13.12	1	False	1.51
53870	0.73	0.73	10.55	10.55	10.72	1	False	-0.46
53870	0.73	0.73	10.55	10.55	10.72	1	False	-0.46
55200	0.71	0.72	10.79	10.67	10.84	1	False	-0.93
55200	0.70	0.72	10.90	10.67	10.84	1	False	-0.87
55247	0.80	0.81	9.63	9.49	9.73	1	False	-0.76
55247	0.79	0.81	9.77	9.49	9.73	1	False	-0.95
55270	0.59	0.67	12.09	11.24	11.37	1	False	1.62
55270	0.62	0.67	11.78	11.24	11.37	1	False	0.43
55675	0.72	0.73	10.67	10.55	10.72	1	False	-0.91
55675	0.72	0.73	10.67	10.55	10.72	1	False	-0.91
55742	0.76	0.80	10.17	9.63	9.86	1	False	0.06
55742	0.75	0.80	10.30	9.63	9.86	1	False	0.55
55781	0.61	0.52	11.88	12.80	12.83	1	False	2.51
55781	0.55	0.52	12.50	12.80	12.83	1	False	0.17
55861	0.63	0.68	11.67	11.13	11.27	1	False	0.42
55861	0.62	0.68	11.78	11.13	11.27	1	False	0.83
56061	0.53	0.53	12.75	12.67	12.72	4	False	-1.00
56061	0.52	0.53	12.80	12.67	12.72	4	False	-0.81
56079	0.67	0.72	11.24	10.67	10.84	1	False	0.42
56079	0.67	0.72	11.24	10.67	10.84	1	False	0.42
56095	0.41	0.41	13.91	13.91	13.88	1	False	-1.00
56095	0.43	0.41	13.71	13.91	13.88	1	False	-0.47
56106	0.36	0.35	14.43	14.54	14.47	1	False	-0.99
56106	0.34	0.35	14.65	14.54	14.47	1	False	-0.43
56110	0.71	0.74	10.79	10.43	10.61	1	False	-0.44
56110	0.72	0.74	10.67	10.43	10.61	1	False	-0.89
56125	0.35	0.35	14.54	14.54	14.47	1	False	-0.85
56125	0.36	0.35	14.43	14.54	14.47	1	False	-0.99
56174	0.63	0.59	11.67	12.09	12.17	1	False	0.77
56174	0.63	0.59	11.67	12.09	12.17	1	False	0.77
56176	0.52	0.60	12.80	11.99	12.07	1	False	1.65
56176	0.52	0.60	12.80	11.99	12.07	1	False	1.65
56193	0.37	0.39	14.33	14.12	14.07	1	False	-0.14
56193	0.39	0.39	14.12	14.12	14.07	1	False	-0.95
56199	0.82	0.86	9.34	8.68	8.97	1	False	0.29
56199	0.82	0.86	9.34	8.68	8.97	1	False	0.29
56210	0.58	0.62	12.19	11.78	11.88	1	False	0.08
56210	0.57	0.62	12.29	11.78	11.88	1	False	0.47
56644	0.37	0.29	14.35	15.24	15.13	4	False	1.83
56644	0.38	0.29	14.25	15.24	15.13	4	False	2.23
56670	0.41	0.41	13.91	13.91	13.88	1	False	-1.00
56670	0.42	0.41	13.81	13.91	13.88	1	False	-0.86
56680	0.52	0.54	12.80	12.60	12.65	1	False	-0.54
56680	0.55	0.54	12.50	12.60	12.65	1	False	-0.55
56684	0.67	0.64	11.24	11.57	11.68	1	False	0.55
56684	0.67	0.64	11.24	11.57	11.68	1	False	0.55
56685	0.34	0.41	14.65	13.91	13.88	1	False	1.83
56685	0.37	0.41	14.33	13.91	13.88	1	False	0.60
56696	0.75	0.76	10.30	10.17	10.37	1	False	-0.85
56696	0.75	0.76	10.30	10.17	10.37	1	False	-0.85
56703	0.54	0.53	12.60	12.70	12.74	1	False	-0.58
56703	0.51	0.53	12.90	12.70	12.74	1	False	-0.52
56706	0.50	0.50	13.00	13.00	13.02	1	False	-1.03
56706	0.48	0.50	13.20	13.00	13.02	1	False	-0.45

Table F-18. 2008-09 MontCAS: Delta Rescore Analysis Results—by Grade and Content Area

Content Area	Grade	IREF	Max Number of Points	Last Usage P Old Mean	Current Usage P New Mean	Last Usage Delta Old Stdev	Current Usage Delta New Stdev	Effect Size	Discard
Mathematics	3	61199	4	2.47	2.48	1.32	1.30	0.00	No
		43124	4	2.20	2.17	1.39	1.38	-0.02	No
	4	43390	4	1.80	1.80	1.23	1.21	0.00	No
		43132	4	2.24	2.13	1.23	1.30	-0.09	No
	5	62112	4	2.28	2.26	1.33	1.35	-0.01	No
	6	243039	4	1.36	1.41	1.19	1.17	0.05	No
	7	61919	4	1.74	1.74	1.34	1.33	0.00	No
		43941	4	1.20	0.98	1.34	1.25	-0.16	No
	8	63297	4	1.39	1.40	1.42	1.45	0.01	No
		63305	4	2.01	1.84	1.48	1.48	-0.12	No
Reading	10	61360	4	1.53	1.50	1.48	1.46	-0.02	No
		242933	4	2.15	2.17	1.25	1.26	0.01	No
	3	67954	4	1.58	1.37	0.94	0.85	-0.23	No
		68868	4	1.50	1.64	0.94	0.93	0.15	No
	4	41066	4	1.41	1.56	0.98	1.02	0.16	No
		67017	4	1.71	1.61	0.86	0.85	-0.11	No
	5	63984	4	1.84	1.77	1.03	0.94	-0.07	No
		73346	4	1.32	1.25	0.99	0.99	-0.08	No
	6	68399	4	1.55	1.80	0.97	0.87	0.26	No
		67871	4	1.76	1.93	0.91	0.83	0.18	No
Science	7	68209	4	1.84	1.68	1.00	0.88	-0.15	No
		68650	4	1.76	1.64	0.96	0.96	-0.12	No
	8	68125	4	2.02	2.03	0.94	0.85	0.01	No
		68545	4	1.87	1.90	0.99	0.95	0.03	No
	10	66639	4	2.11	2.03	1.05	0.98	-0.07	No
		66130	4	1.70	1.65	0.93	0.84	-0.06	No
	4	54862	4	2.67	2.57	1.05	1.03	-0.09	No
	8	56777	4	1.71	1.60	1.03	0.98	-0.11	No
		69319	4	1.08	1.09	0.92	0.94	0.01	No
	10	56061	4	2.06	2.01	0.85	0.84	-0.06	No
		56644	4	1.58	1.18	0.99	0.89	-0.40	No

Appendix G—ITEM RESPONSE THEORY CALIBRATION RESULTS

**Table G-1. 2008-09 MontCAS:
Item Parameter Files—Mathematics Grade 3**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
59298	1.00	-1.60	0.00				
59327	1.00	-1.17	0.00				
61059	1.00	-1.13	0.00				
59347	1.00	-0.51	0.00				
60921	1.00	-0.45	0.00				
43016	1.00	-0.31	0.00				
59345	1.00	-0.29	0.00				
59314	1.00	0.13	0.00				
60310	1.00	-0.62	0.00				
60361	1.00	-0.64	0.00				
60285	1.00	-0.23	0.00				
43073	1.00	-1.14	0.00				
60280	1.00	-0.64	0.00				
60940	1.00	-1.50	0.00				
60375	1.00	0.07	0.00				
59323	1.00	-0.81	0.00				
59328	1.00	0.23	0.00				
34564	1.00	-0.93	0.00				
59333	1.00	-1.37	0.00				
59334	1.00	-0.93	0.00				
59317	1.00	-0.98	0.00				
60335	1.00	-0.28	0.00				
59332	1.00	-0.31	0.00				
60350	1.00	-0.49	0.00				
60294	1.00	-0.38	0.00				
60951	1.00	-0.70	0.00				
59331	1.00	0.11	0.00				
60944	1.00	-1.39	0.00				
59304	1.00	0.03	0.00				
43108	1.00	-0.36	0.00				
60286	1.00	0.42	0.00				
60316	1.00	-1.77	0.00				
59346	1.00	-0.17	0.00				
59321	1.00	-0.49	0.00				
59329	1.00	-1.24	0.00				
43103	1.00	-0.39	0.00				
34618	1.00	-0.65	0.00				
59309	1.00	-1.53	0.00				
43064	1.00	-1.08	0.00				
59315	1.00	-0.96	0.00				
59350	1.00	0.42	0.00				
60283	1.00	-0.35	0.00				
60358	1.00	-0.35	0.00				
125911	1.00	-1.10	0.00				
60963	1.00	-0.46	0.00				
60322	1.00	0.09	0.00				
59349	1.00	-0.86	0.00				
60290	1.00	-0.80	0.00				
59312	1.00	-0.36	0.00				
43105	1.00	-0.40	0.00				
60411	1.00	-0.18	0.00				
61010	1.00	0.02	0.00				
43015	1.00	0.00	0.00				
60269	1.00	-0.49	0.00				
42988	1.00	-0.79	0.00				
43026	1.00	-0.24	0.00				
59289	1.00	-0.51	0.00				
59291	1.00	-1.03	0.00				
61199	1.00	-0.23	0.00	-0.73	0.10	0.21	0.42
43124	1.00	-0.10	0.00	-0.48	0.01	-0.54	1.01

**Table G-2. 2008-09 MontCAS:
Item Parameter Files—Mathematics Grade 4**

IREF	A	B	C	D1	D2	D3	D4
61827	1.00	-0.88	0.00				
61801	1.00	-0.86	0.00				
62326	1.00	-0.57	0.00				
62256	1.00	-0.42	0.00				
61828	1.00	-0.32	0.00				
62222	1.00	-0.03	0.00				
62307	1.00	-0.04	0.00				
61803	1.00	-0.07	0.00				
62294	1.00	0.86	0.00				
62370	1.00	-0.68	0.00				
62225	1.00	0.09	0.00				
62311	1.00	0.32	0.00				
62155	1.00	-0.34	0.00				
61815	1.00	-0.72	0.00				
43194	1.00	0.11	0.00				
62413	1.00	0.39	0.00				
61822	1.00	0.09	0.00				
61795	1.00	-0.97	0.00				
62264	1.00	-0.86	0.00				
61796	1.00	-0.35	0.00				
61831	1.00	-0.10	0.00				
62217	1.00	-0.09	0.00				
61813	1.00	0.09	0.00				
62262	1.00	-0.46	0.00				
61817	1.00	-0.21	0.00				
61826	1.00	-0.20	0.00				
62384	1.00	-0.15	0.00				
61798	1.00	0.34	0.00				
62302	1.00	-0.38	0.00				
34769	1.00	-0.12	0.00				
61824	1.00	-0.19	0.00				
43275	1.00	-1.08	0.00				
35198	1.00	0.63	0.00				
43189	1.00	-0.33	0.00				
62135	1.00	-0.45	0.00				
243063	1.00	1.13	0.00				
61820	1.00	-0.42	0.00				
61805	1.00	-1.06	0.00				
61819	1.00	-0.23	0.00				
62140	1.00	-0.47	0.00				
62228	1.00	0.25	0.00				
62196	1.00	-0.17	0.00				
62335	1.00	-0.04	0.00				
61832	1.00	0.48	0.00				
62339	1.00	-0.51	0.00				
62146	1.00	0.17	0.00				
61833	1.00	0.02	0.00				
62189	1.00	-0.74	0.00				
43386	1.00	0.32	0.00				
62342	1.00	-0.33	0.00				
43255	1.00	-0.09	0.00				
62289	1.00	-0.35	0.00				
43263	1.00	-0.17	0.00				
62171	1.00	0.47	0.00				
62254	1.00	-1.33	0.00				
61791	1.00	0.05	0.00				
43245	1.00	0.37	0.00				
61783	1.00	0.53	0.00				
43390	1.00	0.31	0.00	-0.15	-0.90	0.27	0.77
43132	1.00	0.13	0.00	-0.87	-0.15	0.36	0.66

**Table G-3. 2008-09 MontCAS:
Item Parameter Files—Mathematics Grade 5**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
59851	1.00	-0.67	0.00				
60845	1.00	-0.58	0.00				
59830	1.00	-0.19	0.00				
59861	1.00	-0.16	0.00				
236279	1.00	0.93	0.00				
60415	1.00	-1.63	0.00				
235938	1.00	0.35	0.00				
59872	1.00	-0.28	0.00				
60506	1.00	-0.27	0.00				
59848	1.00	-0.78	0.00				
59841	1.00	-0.01	0.00				
60987	1.00	0.15	0.00				
60413	1.00	0.30	0.00				
61029	1.00	-0.42	0.00				
60075	1.00	-0.47	0.00				
34307	1.00	0.49	0.00				
43502	1.00	-0.12	0.00				
60078	1.00	-0.86	0.00				
60502	1.00	-1.39	0.00				
60420	1.00	-0.88	0.00				
61035	1.00	-0.03	0.00				
59814	1.00	-0.34	0.00				
60065	1.00	-0.19	0.00				
59818	1.00	0.15	0.00				
60979	1.00	0.44	0.00				
60562	1.00	-0.77	0.00				
60383	1.00	-0.88	0.00				
43554	1.00	-0.07	0.00				
60843	1.00	-1.41	0.00				
60072	1.00	0.23	0.00				
59840	1.00	-0.52	0.00				
60067	1.00	-0.50	0.00				
59902	1.00	0.03	0.00				
60839	1.00	-1.43	0.00				
60539	1.00	0.19	0.00				
59900	1.00	0.03	0.00				
43467	1.00	0.01	0.00				
59920	1.00	-0.56	0.00				
59995	1.00	-0.60	0.00				
43455	1.00	-0.09	0.00				
59858	1.00	-0.01	0.00				
59928	1.00	-0.06	0.00				
43449	1.00	-0.48	0.00				
43522	1.00	-0.15	0.00				
60387	1.00	0.08	0.00				
60398	1.00	-0.34	0.00				
59908	1.00	-0.55	0.00				
60510	1.00	0.23	0.00				
59916	1.00	-0.51	0.00				
59810	1.00	-0.07	0.00				
34658	1.00	0.25	0.00				
43469	1.00	-0.03	0.00				
60363	1.00	-0.43	0.00				
59903	1.00	0.51	0.00				
43508	1.00	0.45	0.00				
62033	1.00	-0.41	0.00				
62035	1.00	-0.51	0.00				
236006	1.00	0.04	0.00				
62112	1.00	-0.05	0.00	-0.49	-0.10	0.03	0.55
43536	1.00	0.21	0.00	-0.19	-1.22	1.65	-0.24

**Table G-4. 2008-09 MontCAS:
Item Parameter Files—Mathematics Grade 6**

IREF	A	B	C	D1	D2	D3	D4
60894	1.00	-0.92	0.00				
110515	1.00	-1.27	0.00				
60884	1.00	-0.83	0.00				
63137	1.00	-0.32	0.00				
63154	1.00	0.04	0.00				
61160	1.00	-0.58	0.00				
60883	1.00	-0.11	0.00				
60890	1.00	-0.53	0.00				
63146	1.00	-0.51	0.00				
110516	1.00	0.67	0.00				
110518	1.00	0.53	0.00				
239345	1.00	-0.31	0.00				
43925	1.00	0.52	0.00				
110520	1.00	0.34	0.00				
44091	1.00	-0.52	0.00				
61130	1.00	-1.26	0.00				
44040	1.00	-0.19	0.00				
63003	1.00	0.14	0.00				
62958	1.00	-0.68	0.00				
61173	1.00	0.20	0.00				
62073	1.00	-0.23	0.00				
62012	1.00	-0.49	0.00				
62058	1.00	0.46	0.00				
242551	1.00	-0.50	0.00				
62987	1.00	-0.59	0.00				
61148	1.00	-0.32	0.00				
62044	1.00	-0.11	0.00				
44027	1.00	0.38	0.00				
61162	1.00	-0.21	0.00				
62054	1.00	-0.58	0.00				
62055	1.00	-0.24	0.00				
62968	1.00	0.55	0.00				
62998	1.00	0.58	0.00				
62014	1.00	0.24	0.00				
44094	1.00	-1.05	0.00				
62017	1.00	-1.10	0.00				
62051	1.00	-0.09	0.00				
62991	1.00	-0.15	0.00				
61147	1.00	-0.01	0.00				
62071	1.00	-0.09	0.00				
61136	1.00	0.11	0.00				
44017	1.00	0.21	0.00				
61166	1.00	-0.90	0.00				
43887	1.00	-0.20	0.00				
60880	1.00	0.65	0.00				
43966	1.00	-0.22	0.00				
61151	1.00	-0.13	0.00				
62046	1.00	-0.57	0.00				
61155	1.00	-0.07	0.00				
62062	1.00	-0.61	0.00				
63147	1.00	0.05	0.00				
62021	1.00	-0.33	0.00				
62053	1.00	-0.54	0.00				
61133	1.00	0.04	0.00				
62063	1.00	-0.68	0.00				
63021	1.00	-0.43	0.00				
43902	1.00	0.01	0.00				
63024	1.00	-0.17	0.00				
243039	1.00	0.38	0.00	-0.41	-0.41	0.18	0.63
44096	1.00	0.54	0.00	-0.79	-0.90	0.83	0.85

**Table G-5. 2008-09 MontCAS:
Item Parameter Files—Mathematics Grade 7**

IREF	A	B	C	D1	D2	D3	D4
61206	1.00	-0.67	0.00				
61202	1.00	0.15	0.00				
61181	1.00	0.05	0.00				
61204	1.00	0.16	0.00				
61182	1.00	0.32	0.00				
61777	1.00	-0.47	0.00				
61178	1.00	0.24	0.00				
62948	1.00	0.54	0.00				
61209	1.00	-0.35	0.00				
61207	1.00	0.18	0.00				
61183	1.00	0.37	0.00				
43796	1.00	0.24	0.00				
43846	1.00	-0.03	0.00				
43896	1.00	0.30	0.00				
61365	1.00	-1.21	0.00				
61195	1.00	0.47	0.00				
61746	1.00	0.72	0.00				
61288	1.00	-0.20	0.00				
61254	1.00	-0.56	0.00				
61264	1.00	0.03	0.00				
61356	1.00	-0.06	0.00				
44203	1.00	-0.87	0.00				
61358	1.00	-0.76	0.00				
61882	1.00	-0.17	0.00				
61257	1.00	0.43	0.00				
61232	1.00	-0.37	0.00				
61721	1.00	0.60	0.00				
61740	1.00	-0.34	0.00				
61342	1.00	0.26	0.00				
61275	1.00	0.22	0.00				
61255	1.00	0.15	0.00				
61875	1.00	0.05	0.00				
61760	1.00	-0.04	0.00				
61363	1.00	-0.03	0.00				
43663	1.00	0.04	0.00				
61763	1.00	-0.68	0.00				
61785	1.00	0.01	0.00				
61354	1.00	-0.46	0.00				
61769	1.00	-0.64	0.00				
61723	1.00	0.70	0.00				
61799	1.00	-0.25	0.00				
61776	1.00	0.18	0.00				
61766	1.00	-1.14	0.00				
61792	1.00	0.12	0.00				
61756	1.00	0.06	0.00				
61346	1.00	0.23	0.00				
61876	1.00	-0.96	0.00				
61348	1.00	0.03	0.00				
61277	1.00	0.03	0.00				
43675	1.00	-0.41	0.00				
44238	1.00	0.32	0.00				
61871	1.00	0.18	0.00				
61772	1.00	-1.31	0.00				
61283	1.00	-0.93	0.00				
61340	1.00	-0.08	0.00				
61372	1.00	-0.10	0.00				
61369	1.00	-0.48	0.00				
61374	1.00	-0.43	0.00				
61919	1.00	0.28	0.00	0.18	-1.01	0.60	0.23
43941	1.00	0.63	0.00	0.23	-0.82	0.71	-0.12

**Table G-6. 2008-09 MontCAS:
Item Parameter Files—Mathematics Grade 8**

IREF	A	B	C	D1	D2	D3	D4
62985	1.00	-0.60	0.00				
63178	0.00	0.00	0.00				
62864	1.00	0.32	0.00				
62856	1.00	-0.30	0.00				
62833	1.00	0.08	0.00				
63132	1.00	0.03	0.00				
62829	1.00	0.04	0.00				
61198	1.00	0.38	0.00				
244557	1.00	-0.53	0.00				
62992	1.00	-0.67	0.00				
44209	1.00	-0.38	0.00				
62986	1.00	-0.12	0.00				
63031	1.00	-0.51	0.00				
63242	1.00	-0.24	0.00				
62848	1.00	-0.46	0.00				
63113	1.00	0.28	0.00				
44213	1.00	0.71	0.00				
34993	1.00	-1.02	0.00				
63151	1.00	-0.72	0.00				
43888	1.00	0.04	0.00				
109665	1.00	-0.41	0.00				
63038	1.00	-0.99	0.00				
63095	1.00	-0.17	0.00				
44137	1.00	0.04	0.00				
44139	1.00	0.58	0.00				
63138	1.00	-0.45	0.00				
44186	1.00	-0.65	0.00				
44184	1.00	0.41	0.00				
63213	1.00	-0.66	0.00				
63059	1.00	0.25	0.00				
63219	1.00	0.02	0.00				
44130	1.00	-0.25	0.00				
44236	1.00	-0.05	0.00				
62943	1.00	0.04	0.00				
63226	1.00	0.76	0.00				
63047	1.00	-0.11	0.00				
63111	1.00	0.88	0.00				
44242	1.00	1.12	0.00				
44245	1.00	0.30	0.00				
63106	1.00	-1.06	0.00				
63144	1.00	0.30	0.00				
63143	1.00	0.22	0.00				
63292	1.00	0.08	0.00				
63215	1.00	0.23	0.00				
63287	1.00	-0.38	0.00				
63141	1.00	-0.13	0.00				
63223	1.00	-0.17	0.00				
63250	1.00	0.15	0.00				
44141	1.00	-0.81	0.00				
63135	1.00	-0.51	0.00				
63294	1.00	0.24	0.00				
44149	1.00	-0.47	0.00				
63044	1.00	-0.19	0.00				
63269	1.00	-0.43	0.00				
44127	1.00	-0.81	0.00				
44197	1.00	0.54	0.00				
63170	1.00	0.27	0.00				
44119	1.00	-0.52	0.00				
63297	1.00	0.46	0.00	0.05	-0.57	0.15	0.37
63305	1.00	0.00	0.00	-0.27	-0.12	0.24	0.14

**Table G-7. 2008-09 MontCAS:
Item Parameter Files—Mathematics Grade 10**

IREF	A	B	C	D1	D2	D3	D4
59373	1.00	-0.48	0.00				
59402	1.00	-0.47	0.00				
61319	1.00	0.32	0.00				
59369	1.00	0.16	0.00				
61335	1.00	0.50	0.00				
59367	1.00	0.00	0.00				
59366	1.00	0.71	0.00				
59379	1.00	0.06	0.00				
61326	1.00	-0.06	0.00				
59363	1.00	-0.46	0.00				
241044	1.00	0.28	0.00				
61294	1.00	0.15	0.00				
61285	1.00	-0.10	0.00				
59375	1.00	-0.37	0.00				
62205	1.00	-0.74	0.00				
43880	1.00	-0.57	0.00				
62193	1.00	0.59	0.00				
43609	1.00	0.19	0.00				
62288	1.00	-0.10	0.00				
62361	1.00	-0.14	0.00				
62240	1.00	0.11	0.00				
43807	1.00	-0.18	0.00				
62211	1.00	0.32	0.00				
62383	1.00	0.12	0.00				
61312	1.00	-0.25	0.00				
241110	1.00	0.56	0.00				
44009	1.00	0.72	0.00				
243088	1.00	0.40	0.00				
62352	1.00	-0.17	0.00				
43710	1.00	-0.04	0.00				
43628	1.00	0.23	0.00				
62230	1.00	0.44	0.00				
59376	1.00	0.44	0.00				
110668	1.00	-0.06	0.00				
62182	1.00	-0.66	0.00				
62176	1.00	-0.90	0.00				
62177	1.00	-1.09	0.00				
59396	1.00	0.42	0.00				
62236	1.00	0.94	0.00				
62347	1.00	0.15	0.00				
43803	1.00	-0.14	0.00				
61270	1.00	-0.37	0.00				
62191	1.00	0.65	0.00				
61321	0.00	0.00	0.00				
62374	1.00	-0.59	0.00				
61273	1.00	0.42	0.00				
248819	1.00	-0.03	0.00				
62300	1.00	-0.27	0.00				
62345	1.00	0.56	0.00				
62378	1.00	-0.05	0.00				
62372	1.00	0.26	0.00				
62184	1.00	0.04	0.00				
59370	1.00	0.11	0.00				
62199	1.00	0.34	0.00				
61268	1.00	0.19	0.00				
59406	1.00	-0.25	0.00				
241198	1.00	0.07	0.00				
61345	1.00	0.41	0.00				
61360	1.00	0.27	0.00	0.34	-0.62	0.70	-0.42
242933	1.00	0.14	0.00	-0.08	-1.29	1.92	-0.55

**Table G-8. 2008-09 MontCAS:
Item Parameter Files—Reading Grade 3**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
68778	1.00	-0.97	0.00				
68779	1.00	-0.04	0.00				
68780	1.00	-0.96	0.00				
68781	1.00	-0.68	0.00				
68782	1.00	-0.21	0.00				
68783	1.00	-0.45	0.00				
68787	1.00	-0.64	0.00				
67483	1.00	-1.07	0.00				
67489	1.00	-1.01	0.00				
67566	1.00	-1.11	0.00				
67571	1.00	0.10	0.00				
67614	1.00	0.09	0.00				
67809	1.00	0.34	0.00				
67811	1.00	-0.27	0.00				
67812	1.00	-0.48	0.00				
67845	1.00	-0.40	0.00				
67884	1.00	-0.84	0.00				
67823	1.00	0.32	0.00				
67947	1.00	-0.02	0.00				
68789	1.00	-0.61	0.00				
68793	1.00	-0.47	0.00				
68798	1.00	-0.59	0.00				
68801	1.00	-0.44	0.00				
68803	1.00	-0.83	0.00				
68799	1.00	-0.49	0.00				
68802	1.00	-0.25	0.00				
66948	1.00	-0.10	0.00				
66965	1.00	0.13	0.00				
66988	1.00	-0.53	0.00				
66994	1.00	-0.42	0.00				
67001	1.00	-0.51	0.00				
67005	1.00	-0.52	0.00				
67013	1.00	-0.79	0.00				
67228	1.00	-0.52	0.00				
67232	1.00	-0.40	0.00				
67310	1.00	-0.25	0.00				
67393	1.00	-0.31	0.00				
67415	1.00	-0.34	0.00				
67429	1.00	-1.03	0.00				
67436	1.00	-1.03	0.00				
68844	1.00	-0.28	0.00				
68852	1.00	-0.48	0.00				
68851	1.00	-0.50	0.00				
68854	1.00	-0.06	0.00				
68855	1.00	0.01	0.00				
68856	1.00	-0.84	0.00				
68857	1.00	-0.37	0.00				
68858	1.00	-1.01	0.00				
68860	1.00	0.01	0.00				
68861	1.00	-0.54	0.00				
68863	1.00	0.28	0.00				
68862	1.00	-0.86	0.00				
67954	1.00	0.50	0.00	-1.08	-0.58	0.28	1.38
68868	1.00	0.47	0.00	-0.80	-0.90	0.33	1.37

**Table G-9. 2008-09 MontCAS:
Item Parameter Files—Reading Grade 4**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
66804	1.00	-0.29	0.00				
66656	1.00	-0.81	0.00				
66669	1.00	-0.76	0.00				
66807	1.00	-0.86	0.00				
66813	1.00	-0.24	0.00				
66819	1.00	-1.09	0.00				
66834	1.00	-0.79	0.00				
41043	1.00	-0.21	0.00				
41047	1.00	0.12	0.00				
41048	1.00	-0.09	0.00				
41050	1.00	-0.66	0.00				
41051	1.00	-0.12	0.00				
41053	1.00	-0.13	0.00				
41055	1.00	0.04	0.00				
41054	1.00	-0.19	0.00				
41057	1.00	-0.75	0.00				
41062	1.00	0.15	0.00				
41063	1.00	-0.56	0.00				
41061	1.00	-0.16	0.00				
66495	1.00	-0.90	0.00				
66501	1.00	-1.00	0.00				
66507	1.00	-0.04	0.00				
66513	1.00	-1.03	0.00				
66515	1.00	-0.01	0.00				
66526	1.00	-0.44	0.00				
66537	1.00	-0.21	0.00				
67231	1.00	-0.24	0.00				
67250	1.00	0.08	0.00				
67254	1.00	0.35	0.00				
67259	1.00	0.01	0.00				
67262	1.00	-0.19	0.00				
67268	1.00	0.03	0.00				
67269	1.00	0.17	0.00				
67276	1.00	0.00	0.00				
67302	1.00	0.06	0.00				
67306	1.00	0.38	0.00				
67317	1.00	0.49	0.00				
67321	1.00	-0.06	0.00				
67325	1.00	0.00	0.00				
67326	1.00	-0.24	0.00				
66851	1.00	0.12	0.00				
66856	1.00	-0.41	0.00				
66861	1.00	-0.02	0.00				
66864	1.00	-0.20	0.00				
66877	1.00	0.20	0.00				
66905	1.00	-0.54	0.00				
66926	1.00	0.19	0.00				
66936	1.00	-0.41	0.00				
66949	1.00	-0.15	0.00				
66955	1.00	0.26	0.00				
66966	1.00	0.32	0.00				
66989	1.00	-0.32	0.00				
41066	1.00	0.74	0.00	-1.00	-0.58	0.25	1.33
67017	1.00	0.65	0.00	-1.33	-0.71	0.39	1.65

**Table G-10. 2008-09 MontCAS:
Item Parameter Files—Reading Grade 5**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
64003	1.00	-0.96	0.00				
64010	1.00	-0.88	0.00				
64013	1.00	-0.36	0.00				
64015	1.00	-0.72	0.00				
64021	1.00	-0.85	0.00				
64025	1.00	-0.89	0.00				
64029	1.00	-0.03	0.00				
63845	1.00	-0.76	0.00				
63856	1.00	-0.30	0.00				
63869	1.00	-0.25	0.00				
63890	1.00	-0.91	0.00				
63902	1.00	-0.03	0.00				
63947	1.00	0.18	0.00				
63931	1.00	-0.66	0.00				
63942	1.00	-0.43	0.00				
63951	1.00	-0.47	0.00				
63935	1.00	0.20	0.00				
63955	1.00	-0.80	0.00				
63961	1.00	-1.13	0.00				
63780	1.00	-0.44	0.00				
63791	1.00	-0.69	0.00				
63798	1.00	-0.23	0.00				
63800	1.00	-0.92	0.00				
63802	1.00	-0.72	0.00				
63808	1.00	-0.57	0.00				
63823	1.00	-0.13	0.00				
64050	1.00	-0.29	0.00				
64052	1.00	0.26	0.00				
64062	1.00	-0.07	0.00				
64069	1.00	-0.83	0.00				
64088	1.00	-0.36	0.00				
64090	1.00	-0.13	0.00				
64098	1.00	-0.31	0.00				
65403	1.00	-0.14	0.00				
65399	1.00	-0.54	0.00				
65410	1.00	0.09	0.00				
65425	1.00	-0.45	0.00				
65429	1.00	-0.33	0.00				
65432	1.00	-0.79	0.00				
65434	1.00	-0.39	0.00				
73319	1.00	-0.14	0.00				
73321	1.00	-0.57	0.00				
73323	1.00	-1.12	0.00				
73324	1.00	-0.88	0.00				
73326	1.00	-0.50	0.00				
73327	1.00	-0.44	0.00				
73349	1.00	-0.02	0.00				
73328	1.00	0.05	0.00				
73329	1.00	-0.49	0.00				
73334	1.00	-0.56	0.00				
73417	1.00	-0.13	0.00				
73406	1.00	-0.35	0.00				
63984	1.00	0.42	0.00	-1.09	-0.67	0.40	1.36
73346	1.00	0.67	0.00	-0.92	-0.58	0.30	1.21

**Table G-11. 2008-09 MontCAS:
Item Parameter Files—Reading Grade 6**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
67730	1.00	-1.15	0.00				
67747	1.00	-0.91	0.00				
67734	1.00	-1.20	0.00				
67760	1.00	-0.76	0.00				
67748	1.00	-0.79	0.00				
67759	1.00	0.05	0.00				
67764	1.00	-0.38	0.00				
68340	1.00	-0.64	0.00				
68344	1.00	0.18	0.00				
68346	1.00	0.29	0.00				
68355	1.00	-0.53	0.00				
68352	1.00	-0.07	0.00				
68364	1.00	-0.18	0.00				
68357	1.00	-0.13	0.00				
68368	1.00	-0.33	0.00				
68374	1.00	-0.85	0.00				
68391	1.00	-0.18	0.00				
68384	1.00	-0.76	0.00				
68381	1.00	-0.44	0.00				
67430	1.00	-1.16	0.00				
67443	1.00	-0.47	0.00				
67444	1.00	-1.04	0.00				
67447	1.00	-0.41	0.00				
67454	1.00	0.24	0.00				
67456	1.00	-0.51	0.00				
67457	1.00	-0.90	0.00				
67956	1.00	-0.70	0.00				
67958	1.00	0.25	0.00				
67964	1.00	-1.22	0.00				
67968	1.00	-0.42	0.00				
67975	1.00	0.24	0.00				
67978	1.00	0.14	0.00				
67981	1.00	-0.49	0.00				
68126	1.00	-0.36	0.00				
68128	1.00	-0.15	0.00				
68132	1.00	-0.71	0.00				
68142	1.00	-0.27	0.00				
68147	1.00	-0.39	0.00				
68153	1.00	-0.09	0.00				
68163	1.00	-0.45	0.00				
67778	1.00	-0.78	0.00				
67814	1.00	-0.72	0.00				
67817	1.00	-0.58	0.00				
67818	1.00	-0.69	0.00				
67826	1.00	-0.21	0.00				
67829	1.00	-1.02	0.00				
67835	1.00	-0.75	0.00				
67839	1.00	-0.16	0.00				
67840	1.00	-0.20	0.00				
67854	1.00	-0.88	0.00				
67859	1.00	-0.25	0.00				
67864	1.00	-0.57	0.00				
68399	1.00	0.58	0.00	-0.92	-0.68	0.28	1.32
67871	1.00	0.43	0.00	-1.09	-0.70	0.33	1.46

**Table G-12. 2008-09 MontCAS:
Item Parameter Files—Reading Grade 7**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
68416	1.00	-0.88	0.00				
68426	1.00	-0.30	0.00				
68446	1.00	-0.30	0.00				
68449	1.00	-0.05	0.00				
68461	1.00	-0.69	0.00				
68464	1.00	-1.35	0.00				
68463	1.00	-0.51	0.00				
68108	1.00	-1.33	0.00				
68129	1.00	-0.60	0.00				
68136	1.00	-0.36	0.00				
68160	1.00	-0.88	0.00				
68164	1.00	-0.56	0.00				
68195	1.00	-0.28	0.00				
68167	1.00	-0.43	0.00				
68180	1.00	-0.24	0.00				
68192	1.00	-0.24	0.00				
68201	1.00	-0.39	0.00				
68198	1.00	0.30	0.00				
68203	1.00	-0.47	0.00				
67597	1.00	-0.04	0.00				
67603	1.00	-0.38	0.00				
67608	1.00	-0.67	0.00				
67630	1.00	-0.39	0.00				
67651	1.00	-0.74	0.00				
67660	1.00	-0.39	0.00				
67682	1.00	-0.58	0.00				
68593	1.00	-0.05	0.00				
68597	1.00	-0.39	0.00				
68598	1.00	-0.91	0.00				
68600	1.00	-0.66	0.00				
68601	1.00	-0.44	0.00				
68604	1.00	-0.94	0.00				
68605	1.00	0.14	0.00				
67959	1.00	-0.75	0.00				
67965	1.00	-1.01	0.00				
67980	1.00	-0.83	0.00				
67984	1.00	-0.73	0.00				
68020	1.00	-1.18	0.00				
67987	1.00	0.17	0.00				
68044	1.00	-0.67	0.00				
68622	1.00	-0.88	0.00				
68624	1.00	-0.47	0.00				
68625	1.00	-0.48	0.00				
68630	1.00	0.04	0.00				
68632	1.00	-0.63	0.00				
68633	1.00	0.15	0.00				
68634	1.00	-0.14	0.00				
68627	1.00	-0.07	0.00				
68637	1.00	-0.84	0.00				
68641	1.00	-0.43	0.00				
68644	1.00	-0.46	0.00				
68647	1.00	-0.07	0.00				
68209	1.00	0.28	0.00	-1.21	-0.66	0.52	1.35
68650	1.00	0.34	0.00	-1.02	-0.67	0.35	1.35

**Table G-13. 2008-09 MontCAS:
Item Parameter Files—Reading Grade 8**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
68696	1.00	-0.52	0.00				
68700	1.00	-0.88	0.00				
68698	1.00	-0.10	0.00				
68702	1.00	-0.04	0.00				
68706	1.00	-0.10	0.00				
68714	1.00	-0.36	0.00				
68725	1.00	-0.42	0.00				
68068	1.00	-0.52	0.00				
68065	1.00	-0.69	0.00				
68078	1.00	-0.39	0.00				
68085	1.00	-0.60	0.00				
68088	1.00	-0.62	0.00				
68098	1.00	-0.91	0.00				
68100	1.00	0.00	0.00				
68106	1.00	-0.61	0.00				
68111	1.00	-0.04	0.00				
68116	1.00	-0.06	0.00				
68109	1.00	-0.26	0.00				
68117	1.00	-0.69	0.00				
68353	1.00	-0.34	0.00				
68354	1.00	-0.35	0.00				
68356	1.00	-0.12	0.00				
68367	1.00	-0.10	0.00				
68372	1.00	-0.71	0.00				
68378	1.00	-0.60	0.00				
68386	1.00	-0.50	0.00				
67917	1.00	-0.40	0.00				
67919	1.00	-0.27	0.00				
67926	1.00	0.18	0.00				
67933	1.00	0.07	0.00				
67930	1.00	-0.36	0.00				
67934	1.00	-0.37	0.00				
67936	1.00	0.10	0.00				
67974	1.00	-0.30	0.00				
67982	1.00	-0.12	0.00				
67986	1.00	0.32	0.00				
67993	1.00	-0.54	0.00				
67995	1.00	-0.33	0.00				
68001	1.00	-0.55	0.00				
68007	1.00	-0.91	0.00				
68532	1.00	-0.29	0.00				
68523	1.00	0.04	0.00				
68521	1.00	-0.19	0.00				
68525	1.00	-0.35	0.00				
68529	1.00	-0.19	0.00				
68530	1.00	-0.52	0.00				
68526	1.00	-0.56	0.00				
68531	1.00	0.09	0.00				
68540	1.00	-0.58	0.00				
68533	1.00	0.14	0.00				
68535	1.00	-0.40	0.00				
68541	1.00	-0.96	0.00				
68125	1.00	0.40	0.00	-1.09	-0.64	0.35	1.37
68545	1.00	0.30	0.00	-1.30	-0.80	0.26	1.84

**Table G-14. 2008-09 MontCAS:
Item Parameter Files—Reading Grade 10**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
67460	1.00	-0.04	0.00				
67470	1.00	-0.39	0.00				
67488	1.00	-0.09	0.00				
67511	1.00	-0.18	0.00				
67549	1.00	-0.52	0.00				
67521	1.00	-0.33	0.00				
67582	1.00	0.04	0.00				
66435	1.00	-0.45	0.00				
66560	1.00	-0.25	0.00				
66479	1.00	0.00	0.00				
66549	1.00	-0.12	0.00				
66596	1.00	-0.45	0.00				
66600	1.00	-0.30	0.00				
66579	1.00	-0.76	0.00				
66508	1.00	-0.39	0.00				
66610	1.00	-1.06	0.00				
66552	1.00	-0.12	0.00				
66554	1.00	0.00	0.00				
66588	1.00	-0.07	0.00				
66181	1.00	-0.31	0.00				
66189	1.00	-0.97	0.00				
66186	1.00	-0.74	0.00				
66207	1.00	-0.85	0.00				
66215	1.00	-0.13	0.00				
66226	1.00	0.08	0.00				
66221	1.00	-0.23	0.00				
65879	1.00	-0.39	0.00				
65882	1.00	0.02	0.00				
65884	1.00	-0.55	0.00				
65885	1.00	0.27	0.00				
65887	1.00	-0.53	0.00				
65897	1.00	0.21	0.00				
65893	1.00	-0.19	0.00				
66054	1.00	-0.15	0.00				
66062	1.00	-0.49	0.00				
66066	1.00	-0.41	0.00				
66073	1.00	-0.67	0.00				
66077	1.00	-0.62	0.00				
66081	1.00	0.36	0.00				
66084	1.00	-0.24	0.00				
65926	1.00	-0.33	0.00				
65937	1.00	-0.54	0.00				
65948	1.00	-0.36	0.00				
65956	1.00	-0.06	0.00				
65967	1.00	0.31	0.00				
65974	1.00	-0.48	0.00				
66095	1.00	-0.49	0.00				
65995	1.00	0.17	0.00				
65993	1.00	-0.74	0.00				
66036	1.00	-0.50	0.00				
65997	1.00	0.10	0.00				
65996	1.00	-0.88	0.00				
66639	1.00	0.24	0.00	-0.82	-0.58	0.37	1.03
66130	1.00	0.53	0.00	-0.98	-0.48	0.31	1.14

**Table G-15. 2008-09 MontCAS:
Item Parameter Files—Science Grade 4**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
53170	1.00	-0.01	0.00				
56917	1.00	-0.66	0.00				
55567	1.00	-1.06	0.00				
56385	1.00	-0.98	0.00				
52578	1.00	-1.27	0.00				
56387	1.00	-0.31	0.00				
57961	1.00	-0.73	0.00				
55572	1.00	-1.57	0.00				
53264	1.00	-0.51	0.00				
55556	1.00	-0.32	0.00				
56048	1.00	-0.74	0.00				
53676	1.00	-0.44	0.00				
57892	1.00	-0.20	0.00				
55586	1.00	-0.65	0.00				
55938	1.00	-0.12	0.00				
56313	1.00	-0.17	0.00				
56337	1.00	-0.44	0.00				
56166	1.00	-1.03	0.00				
56130	1.00	-0.59	0.00				
39158	0.00	0.00	0.00				
56342	1.00	-0.71	0.00				
57904	1.00	-0.95	0.00				
55877	1.00	-0.45	0.00				
56025	1.00	-0.41	0.00				
52576	1.00	-0.06	0.00				
56968	1.00	-0.55	0.00				
54796	1.00	-0.40	0.00				
56928	1.00	-0.43	0.00				
55608	1.00	-0.91	0.00				
57858	1.00	-0.46	0.00				
53890	1.00	-0.46	0.00				
56260	1.00	-1.22	0.00				
55618	1.00	-0.48	0.00				
56936	1.00	-0.04	0.00				
53309	1.00	-0.69	0.00				
52593	1.00	-0.34	0.00				
53099	1.00	-1.00	0.00				
52597	1.00	-0.76	0.00				
56232	1.00	-0.58	0.00				
52582	1.00	-0.08	0.00				
55778	1.00	0.14	0.00				
57985	1.00	-0.94	0.00				
56148	1.00	-0.26	0.00				
56192	1.00	-1.00	0.00				
56252	1.00	-0.92	0.00				
55625	1.00	-0.19	0.00				
57966	1.00	-1.58	0.00				
56672	1.00	-0.50	0.00				
56264	1.00	-0.15	0.00				
54009	1.00	-0.87	0.00				
56155	1.00	-0.41	0.00				
56433	1.00	-0.38	0.00				
56076	1.00	-0.41	0.00				
54862	1.00	-0.47	0.00	-0.66	-0.75	0.31	1.10
39113	1.00	0.65	0.00	0.35	-0.02	-0.64	0.30

**Table G-16. 2008-09 MontCAS:
Item Parameter Files—Science Grade 8**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
54257	1.00	-0.95	0.00				
39582	1.00	-1.19	0.00				
54329	1.00	-0.02	0.00				
54104	1.00	0.04	0.00				
53194	1.00	-0.15	0.00				
54934	1.00	-0.19	0.00				
53514	1.00	-0.32	0.00				
56811	1.00	0.06	0.00				
56782	1.00	-0.46	0.00				
39467	1.00	-0.34	0.00				
56856	1.00	0.53	0.00				
54480	1.00	-0.47	0.00				
57008	1.00	-0.56	0.00				
57898	1.00	-0.16	0.00				
56807	1.00	-0.11	0.00				
54472	1.00	-0.84	0.00				
56986	1.00	-0.65	0.00				
56857	1.00	-0.26	0.00				
53202	1.00	-1.09	0.00				
54138	1.00	-0.89	0.00				
54302	1.00	-0.29	0.00				
56998	1.00	-0.11	0.00				
54214	1.00	-0.38	0.00				
54192	1.00	-0.41	0.00				
56808	1.00	0.24	0.00				
56884	1.00	-0.06	0.00				
54515	1.00	-1.38	0.00				
56835	1.00	0.05	0.00				
57004	1.00	-0.04	0.00				
54922	1.00	-0.60	0.00				
53103	1.00	-0.32	0.00				
56820	1.00	-0.45	0.00				
56862	1.00	-0.43	0.00				
39895	1.00	-0.88	0.00				
53241	1.00	0.29	0.00				
56843	1.00	-1.35	0.00				
54731	1.00	-0.14	0.00				
53162	1.00	-1.05	0.00				
54502	1.00	-0.78	0.00				
54126	1.00	-0.67	0.00				
56822	1.00	-0.95	0.00				
54242	1.00	-0.04	0.00				
56995	1.00	0.86	0.00				
56880	1.00	0.19	0.00				
39493	1.00	-0.61	0.00				
53389	1.00	-0.52	0.00				
57002	1.00	0.11	0.00				
54467	1.00	0.41	0.00				
54223	1.00	-1.07	0.00				
56803	1.00	-0.34	0.00				
39478	1.00	-0.35	0.00				
53522	1.00	-0.27	0.00				
53373	1.00	0.34	0.00				
56777	1.00	0.32	0.00	-1.10	-0.06	0.31	0.85
69319	1.00	0.54	0.00	-0.56	-0.89	0.81	0.63

**Table G-17. 2008-09 MontCAS:
Item Parameter Files—Science Grade 10**

<i>IREF</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D1</i>	<i>D2</i>	<i>D3</i>	<i>D4</i>
53394	1.00	-0.71	0.00				
52279	1.00	-0.52	0.00				
55200	1.00	-0.56	0.00				
56684	1.00	-0.48	0.00				
56199	1.00	-1.01	0.00				
56079	1.00	-0.45	0.00				
53725	1.00	0.19	0.00				
53763	1.00	-0.16	0.00				
52987	1.00	-0.19	0.00				
53324	1.00	-0.75	0.00				
56110	1.00	-0.62	0.00				
55781	1.00	-0.21	0.00				
52992	1.00	0.06	0.00				
56210	1.00	-0.19	0.00				
52949	1.00	0.21	0.00				
56706	1.00	0.02	0.00				
55742	1.00	-0.73	0.00				
56174	1.00	-0.36	0.00				
55247	1.00	-0.89	0.00				
56106	1.00	0.45	0.00				
56696	1.00	-0.72	0.00				
53203	1.00	-0.90	0.00				
53577	1.00	-0.95	0.00				
53793	1.00	0.17	0.00				
52991	1.00	0.24	0.00				
56680	1.00	-0.10	0.00				
56095	1.00	0.21	0.00				
55861	1.00	-0.31	0.00				
53768	1.00	-0.09	0.00				
55270	1.00	-0.28	0.00				
56176	1.00	-0.02	0.00				
52971	1.00	-0.48	0.00				
52280	1.00	-0.38	0.00				
52957	1.00	0.46	0.00				
53400	1.00	-0.65	0.00				
52929	1.00	-1.01	0.00				
52284	1.00	-0.77	0.00				
56125	1.00	0.42	0.00				
56685	1.00	0.39	0.00				
53370	1.00	0.18	0.00				
53181	1.00	0.00	0.00				
52288	1.00	-0.46	0.00				
56193	1.00	0.38	0.00				
56670	1.00	0.26	0.00				
53733	1.00	-0.37	0.00				
56703	1.00	-0.06	0.00				
52972	1.00	0.59	0.00				
53559	1.00	-0.62	0.00				
52932	1.00	-0.06	0.00				
52285	1.00	-0.97	0.00				
52981	1.00	0.58	0.00				
53870	1.00	-0.63	0.00				
55675	1.00	-0.63	0.00				
56061	1.00	0.11	0.00	-1.42	-0.35	1.12	0.65
56644	1.00	0.61	0.00	-1.68	-0.09	0.81	0.96

Appendix H—RAW TO SCALED SCORE Lookup TABLES

Table H-1. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Mathematics Grade 3

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	34	226	231
1	200	200	35	229	234
2	200	200	36	232	237
3	200	200	37	234	240
4	200	200	38	237	243
5	200	200	39	240	246
6	200	200	40	243	249
7	200	200	41	246	252
8	200	200	42	249	255
9	200	200	43	253	258
10	200	200	44	256	261
11	200	200	45	259	264
12	200	200	46	262	267
13	200	200	47	265	270
14	200	200	48	268	273
15	200	200	49	271	276
16	200	200	50	274	279
17	200	200	51	277	282
18	200	200	52	281	284
19	200	200	53	284	287
20	200	200	54	287	290
21	200	200	55	290	293
22	200	200	56	293	296
23	200	200	57	297	299
24	200	200	58	300	300
25	200	203	59	300	300
26	201	206	60	300	300
27	204	209	61	300	300
28	208	212	62	300	300
29	211	215	63	300	300
30	214	218	64	300	300
31	217	221	65	300	300
32	220	224	66	300	300
33	223	228			

continued

Table H-2. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Mathematics Grade 4

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	34	243	240
1	200	200	35	246	243
2	200	200	36	249	246
3	200	200	37	252	249
4	200	200	38	255	252
5	200	200	39	258	255
6	200	200	40	261	258
7	200	200	41	264	261
8	200	200	42	267	264
9	200	200	43	270	267
10	200	200	44	273	271
11	200	200	45	276	274
12	200	200	46	280	277
13	200	200	47	283	280
14	200	200	48	286	283
15	200	200	49	289	286
16	200	200	50	293	290
17	200	200	51	296	293
18	200	200	52	299	296
19	200	200	53	300	299
20	202	200	54	300	300
21	205	202	55	300	300
22	207	205	56	300	300
23	210	208	57	300	300
24	213	211	58	300	300
25	216	214	59	300	300
26	219	217	60	300	300
27	222	220	61	300	300
28	225	223	62	300	300
29	228	226	63	300	300
30	231	228	64	300	300
31	234	231	65	300	300
32	237	234	66	300	300
33	240	237			

continued

Table H-3. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Mathematics Grade 5

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	34	249	253
1	200	200	35	252	256
2	200	200	36	255	259
3	200	200	37	257	261
4	200	200	38	260	264
5	200	200	39	263	267
6	200	200	40	266	270
7	200	200	41	269	273
8	200	200	42	272	275
9	200	200	43	274	278
10	200	200	44	277	281
11	200	200	45	280	284
12	200	200	46	283	287
13	200	200	47	286	289
14	200	200	48	288	292
15	200	200	49	292	295
16	200	200	50	294	298
17	200	203	51	297	300
18	203	206	52	300	300
19	206	209	53	300	300
20	209	212	54	300	300
21	212	215	55	300	300
22	214	218	56	300	300
23	217	221	57	300	300
24	220	224	58	300	300
25	223	227	59	300	300
26	226	230	60	300	300
27	229	232	61	300	300
28	232	235	62	300	300
29	234	238	63	300	300
30	237	241	64	300	300
31	240	244	65	300	300
32	243	247	66	300	300
33	246	249			

continued

Table H-4. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Mathematics Grade 6

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	34	256	256
1	200	200	35	259	258
2	200	200	36	261	261
3	200	200	37	264	264
4	200	200	38	267	267
5	200	200	39	270	270
6	200	200	40	272	273
7	200	200	41	275	276
8	200	200	42	278	279
9	200	200	43	281	282
10	200	200	44	283	285
11	200	200	45	286	288
12	200	200	46	289	291
13	200	200	47	291	294
14	200	200	48	294	296
15	201	201	49	297	299
16	204	204	50	300	300
17	207	207	51	300	300
18	210	210	52	300	300
19	213	213	53	300	300
20	215	215	54	300	300
21	218	218	55	300	300
22	221	221	56	300	300
23	224	224	57	300	300
24	227	227	58	300	300
25	230	230	59	300	300
26	233	233	60	300	300
27	236	236	61	300	300
28	239	238	62	300	300
29	242	241	63	300	300
30	245	244	64	300	300
31	247	247	65	300	300
32	250	249	66	300	300
33	253	253			

continued

Table H-5. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Mathematics Grade 7

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	34	268	265
1	200	200	35	271	268
2	200	200	36	274	272
3	200	200	37	277	275
4	200	200	38	280	278
5	200	200	39	283	281
6	200	200	40	286	284
7	200	200	41	288	287
8	200	200	42	291	290
9	200	200	43	294	293
10	200	200	44	297	296
11	200	200	45	300	298
12	201	200	46	300	300
13	204	200	47	300	300
14	207	203	48	300	300
15	210	206	49	300	300
16	214	209	50	300	300
17	217	212	51	300	300
18	220	215	52	300	300
19	223	218	53	300	300
20	226	221	54	300	300
21	229	224	55	300	300
22	232	228	56	300	300
23	235	231	57	300	300
24	239	234	58	300	300
25	242	237	59	300	300
26	245	240	60	300	300
27	248	243	61	300	300
28	251	246	62	300	300
29	254	249	63	300	300
30	257	253	64	300	300
31	260	256	65	300	300
32	263	259	66	300	300
33	265	262			

continued

Table H-6. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Mathematics Grade 8

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	34	256	254
1	200	200	35	258	256
2	200	200	36	261	259
3	200	200	37	263	261
4	200	200	38	265	264
5	200	200	39	268	266
6	200	200	40	270	269
7	200	200	41	272	271
8	200	200	42	275	274
9	200	200	43	277	276
10	200	200	44	280	279
11	200	200	45	282	281
12	203	200	46	284	284
13	205	202	47	287	286
14	208	204	48	289	288
15	210	207	49	292	291
16	213	209	50	294	293
17	215	212	51	296	296
18	218	214	52	299	298
19	220	217	53	300	300
20	223	219	54	300	300
21	225	222	55	300	300
22	228	224	56	300	300
23	230	227	57	300	300
24	232	229	58	300	300
25	235	232	59	300	300
26	237	234	60	300	300
27	240	236	61	300	300
28	242	239	62	300	300
29	244	241	63	300	300
30	247	244	64	300	300
31	249	246	65	300	300
32	251	249	66	300	300
33	254	251			

continued

Table H-7. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Mathematics Grade 10

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	34	263	259
1	200	200	35	265	261
2	200	200	36	267	263
3	200	200	37	269	265
4	200	200	38	271	267
5	200	200	39	273	269
6	200	200	40	275	271
7	202	200	41	277	273
8	204	201	42	279	275
9	207	204	43	281	278
10	210	206	44	283	280
11	212	209	45	285	282
12	215	211	46	288	284
13	217	213	47	290	287
14	219	216	48	292	289
15	222	218	49	294	291
16	224	220	50	296	293
17	226	222	51	298	296
18	229	224	52	300	298
19	231	227	53	300	300
20	233	229	54	300	300
21	235	231	55	300	300
22	238	233	56	300	300
23	240	235	57	300	300
24	242	238	58	300	300
25	244	240	59	300	300
26	246	242	60	300	300
27	248	244	61	300	300
28	250	246	62	300	300
29	253	248	63	300	300
30	255	250	64	300	300
31	257	252	65	300	300
32	259	254	66	300	300
33	261	257			

continued

Table H-8. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Reading Grade 3

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	31	255	261
1	200	200	32	257	263
2	200	200	33	260	266
3	200	200	34	262	268
4	200	200	35	265	270
5	200	200	36	267	273
6	200	200	37	270	275
7	200	202	38	272	277
8	200	205	39	275	280
9	201	207	40	277	282
10	203	210	41	280	284
11	206	212	42	282	286
12	208	215	43	285	289
13	210	217	44	287	291
14	213	220	45	290	293
15	215	222	46	292	295
16	217	224	47	295	298
17	220	227	48	297	300
18	222	230	49	300	300
19	224	232	50	300	300
20	227	235	51	300	300
21	229	237	52	300	300
22	232	240	53	300	300
23	234	242	54	300	300
24	237	244	55	300	300
25	239	247	56	300	300
26	242	249	57	300	300
27	244	252	58	300	300
28	247	254	59	300	300
29	249	256	60	300	300
30	252	259			

continued

Table H-9. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Reading Grade 4

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	31	258	257
1	200	200	32	260	259
2	200	200	33	263	262
3	200	200	34	265	265
4	200	200	35	268	267
5	200	200	36	271	270
6	200	200	37	273	272
7	200	200	38	276	275
8	200	200	39	278	278
9	200	200	40	281	280
10	202	201	41	284	283
11	205	204	42	286	285
12	207	207	43	288	288
13	210	209	44	291	290
14	213	212	45	294	293
15	215	215	46	296	296
16	218	217	47	299	298
17	221	220	48	300	300
18	223	223	49	300	300
19	226	225	50	300	300
20	229	228	51	300	300
21	231	231	52	300	300
22	234	233	53	300	300
23	236	236	54	300	300
24	239	239	55	300	300
25	242	241	56	300	300
26	244	244	57	300	300
27	247	246	58	300	300
28	249	249	59	300	300
29	252	252	60	300	300
30	255	254			

continued

Table H-10. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Reading Grade 5

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	31	252	258
1	200	200	32	255	261
2	200	200	33	258	263
3	200	200	34	261	266
4	200	200	35	264	268
5	200	200	36	266	271
6	200	200	37	269	274
7	200	200	38	272	276
8	200	200	39	275	279
9	200	200	40	278	281
10	200	200	41	281	284
11	200	201	42	284	286
12	200	204	43	287	289
13	200	208	44	289	291
14	203	211	45	292	294
15	206	214	46	295	296
16	209	216	47	298	299
17	212	219	48	300	300
18	215	222	49	300	300
19	218	225	50	300	300
20	220	228	51	300	300
21	223	231	52	300	300
22	226	234	53	300	300
23	229	236	54	300	300
24	232	239	55	300	300
25	235	242	56	300	300
26	237	244	57	300	300
27	240	247	58	300	300
28	243	249	59	300	300
29	246	253	60	300	300
30	249	255			

continued

Table H-11. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Reading Grade 6

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	31	254	256
1	200	200	32	257	259
2	200	200	33	260	262
3	200	200	34	263	265
4	200	200	35	266	268
5	200	200	36	269	270
6	200	200	37	271	273
7	200	200	38	274	276
8	200	200	39	277	279
9	200	200	40	280	282
10	200	200	41	283	284
11	200	200	42	286	287
12	200	200	43	288	290
13	200	201	44	291	293
14	203	205	45	294	296
15	207	208	46	297	298
16	210	211	47	300	300
17	213	214	48	300	300
18	216	217	49	300	300
19	219	220	50	300	300
20	222	224	51	300	300
21	225	227	52	300	300
22	228	230	53	300	300
23	231	233	54	300	300
24	234	236	55	300	300
25	237	239	56	300	300
26	240	242	57	300	300
27	243	245	58	300	300
28	246	247	59	300	300
29	249	250	60	300	300
30	252	253			

continued

Table H-12. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Reading Grade 7

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	31	251	255
1	200	200	32	253	257
2	200	200	33	256	260
3	200	200	34	259	262
4	200	200	35	261	265
5	200	200	36	264	268
6	200	200	37	266	270
7	200	200	38	269	273
8	200	200	39	272	275
9	200	200	40	274	278
10	200	200	41	277	280
11	200	201	42	279	283
12	202	204	43	282	286
13	204	206	44	285	287
14	207	209	45	287	291
15	209	212	46	290	293
16	212	215	47	292	296
17	215	217	48	295	298
18	217	220	49	298	300
19	220	223	50	300	300
20	222	225	51	300	300
21	224	228	52	300	300
22	228	231	53	300	300
23	230	233	54	300	300
24	233	236	55	300	300
25	235	239	56	300	300
26	238	241	57	300	300
27	240	244	58	300	300
28	243	247	59	300	300
29	246	249	60	300	300
30	248	252			

continued

Table H-13. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Reading Grade 8

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	31	243	247
1	200	200	32	246	249
2	200	200	33	249	253
3	200	200	34	252	256
4	200	200	35	255	259
5	200	200	36	258	261
6	200	200	37	261	264
7	200	200	38	264	267
8	200	200	39	267	270
9	200	200	40	270	273
10	200	200	41	273	276
11	200	200	42	276	279
12	200	200	43	279	282
13	200	200	44	282	285
14	200	200	45	285	287
15	200	200	46	288	290
16	200	200	47	291	293
17	200	203	48	294	296
18	203	207	49	296	299
19	206	210	50	299	300
20	210	213	51	300	300
21	213	216	52	300	300
22	216	219	53	300	300
23	219	222	54	300	300
24	222	225	55	300	300
25	224	228	56	300	300
26	228	231	57	300	300
27	231	235	58	300	300
28	234	238	59	300	300
29	237	241	60	300	300
30	240	244			

continued

Table H-14. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Reading Grade 10

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	31	245	243
1	200	200	32	248	246
2	200	200	33	252	249
3	200	200	34	255	253
4	200	200	35	258	256
5	200	200	36	261	259
6	200	200	37	264	262
7	200	200	38	267	265
8	200	200	39	270	268
9	200	200	40	274	271
10	200	200	41	277	275
11	200	200	42	280	278
12	200	200	43	283	281
13	200	200	44	286	284
14	200	200	45	288	287
15	200	200	46	292	290
16	200	200	47	295	293
17	200	200	48	298	296
18	201	200	49	300	299
19	204	204	50	300	300
20	208	207	51	300	300
21	211	211	52	300	300
22	215	214	53	300	300
23	218	217	54	300	300
24	222	221	55	300	300
25	225	224	56	300	300
26	228	227	57	300	300
27	232	230	58	300	300
28	235	234	59	300	300
29	238	237	60	300	300
30	242	240			

continued

Table H-15. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Science Grade 4

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	31	230	236
1	200	200	32	232	238
2	200	200	33	234	240
3	200	200	34	236	243
4	200	200	35	238	245
5	200	200	36	240	247
6	200	200	37	243	249
7	200	200	38	245	251
8	200	200	39	247	253
9	200	200	40	249	255
10	200	200	41	252	258
11	200	200	42	254	260
12	200	200	43	256	262
13	200	200	44	259	265
14	200	200	45	262	267
15	200	201	46	264	270
16	200	204	47	267	273
17	200	206	48	270	275
18	201	209	49	273	278
19	203	211	50	276	281
20	206	213	51	279	284
21	208	216	52	283	287
22	210	218	53	287	291
23	213	220	54	291	294
24	215	222	55	296	298
25	217	224	56	300	300
26	219	226	57	300	300
27	221	228	58	300	300
28	223	230	59	300	300
29	226	232	60	300	300
30	228	234	61	300	300

continued

Table H-16. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Science Grade 8

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	31	237	242
1	200	200	32	239	244
2	200	200	33	242	246
3	200	200	34	244	249
4	200	200	35	247	251
5	200	200	36	249	253
6	200	200	37	251	256
7	200	200	38	254	258
8	200	200	39	256	260
9	200	200	40	259	263
10	200	200	41	262	265
11	200	200	42	264	268
12	200	200	43	267	271
13	200	200	44	270	274
14	200	200	45	273	277
15	200	202	46	276	280
16	200	205	47	279	282
17	202	208	48	282	286
18	205	211	49	285	290
19	208	213	50	289	293
20	210	216	51	293	297
21	213	219	52	297	300
22	215	221	53	300	300
23	218	223	54	300	300
24	220	226	55	300	300
25	223	228	56	300	300
26	225	230	57	300	300
27	228	233	58	300	300
28	230	235	59	300	300
29	232	237	60	300	300
30	235	240	61	300	300

continued

Table H-17. 2008-09 MontCAS: Raw to Scaled Score Lookup Tables—Science Grade 10

<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>	<i>Raw Score</i>	<i>Last Year Scaled Score</i>	<i>This Year Scaled Score</i>
0	200	200	31	239	234
1	200	200	32	241	237
2	200	200	33	243	239
3	200	200	34	246	241
4	200	200	35	248	243
5	200	200	36	250	246
6	200	200	37	252	248
7	200	200	38	255	250
8	200	200	39	257	253
9	200	200	40	259	255
10	200	200	41	262	258
11	200	200	42	264	260
12	200	200	43	267	263
13	200	200	44	269	266
14	200	200	45	272	269
15	200	200	46	275	272
16	203	200	47	278	275
17	206	202	48	281	278
18	209	205	49	284	282
19	211	207	50	287	286
20	214	210	51	290	290
21	216	212	52	294	294
22	219	214	53	298	299
23	221	217	54	300	300
24	223	219	55	300	300
25	226	221	56	300	300
26	228	223	57	300	300
27	230	226	58	300	300
28	232	228	59	300	300
29	235	230	60	300	300
30	237	232	61	300	300

continued

Appendix I—DETAILED ALPHA COEFFICIENT RESULTS

Table I-1. 2008-09 MontCAS: Reliabilities of Subgroups by Grade and Content Area

<i>Grade</i>	<i>Content Area</i>	<i>Subgroup</i>	<i>N</i>	<i>(α)</i>
3	Mathematics	All Students	10250	0.91
		American Indian	1270	0.91
		Asian	85	0.92
		Black or African American	115	0.91
		Hispanic	283	0.91
		Limited English Proficient	424	0.89
		Low Income	4379	0.91
		Native Hawaiian/Other Pacific	25	0.92
		Special Education	1157	0.92
		White, Non-Hispanic	8469	0.90
4	Reading	All Students	10225	0.90
		American Indian	1265	0.90
		Asian	84	0.92
		Black or African American	113	0.92
		Hispanic	282	0.90
		Limited English Proficient	419	0.86
		Low Income	4358	0.90
		Native Hawaiian/Other Pacific	25	0.92
		Special Education	1137	0.90
		White, Non-Hispanic	8453	0.90
4	Mathematics	All Students	10439	0.91
		American Indian	1312	0.91
		Asian	83	0.92
		Black or African American	132	0.92
		Hispanic	294	0.90
		Limited English Proficient	373	0.88
		Low Income	4347	0.90
		Native Hawaiian/Other Pacific	25	0.89
		Special Education	1168	0.92
		White, Non-Hispanic	8593	0.90
4	Reading	All Students	10408	0.91
		American Indian	1312	0.90
		Asian	83	0.90
		Black or African American	130	0.89
		Hispanic	291	0.90
		Limited English Proficient	374	0.87
		Low Income	4328	0.90
		Native Hawaiian/Other Pacific	25	0.90
		Special Education	1143	0.91
		White, Non-Hispanic	8567	0.90
4	Science	All Students	10449	0.85
		American Indian	1313	0.85
		Asian	83	0.84
		Black or African American	133	0.84
		Hispanic	294	0.84
		Limited English Proficient	373	0.81
		Low Income	4352	0.85
		Native Hawaiian/Other Pacific	25	0.76
		Special Education	1179	0.87
		White, on-Hispanic	8601	0.84

continued

<i>Grade</i>	<i>Content Area</i>	<i>Subgroup</i>	<i>N</i>	<i>(a)</i>
5	Mathematics	All Students	10350	0.91
		American Indian	1200	0.91
		Asian	94	0.92
		Black or African American	122	0.88
		Hispanic	273	0.90
		Limited English Proficient	325	0.86
		Low Income	4178	0.91
		Native Hawaiian/Other Pacific	20	0.85
		Special Education	1155	0.90
		White, Non-Hispanic	8641	0.91
5	Reading	All Students	10334	0.91
		American Indian	1200	0.90
		Asian	94	0.89
		Black or African American	122	0.86
		Hispanic	271	0.90
		Limited English Proficient	324	0.85
		Low Income	4168	0.91
		Native Hawaiian/Other Pacific	20	0.93
		Special Education	1137	0.91
		White, Non-Hispanic	8627	0.91
6	Mathematics	All Students	10371	0.92
		American Indian	1202	0.91
		Asian	83	0.92
		Black or African American	125	0.92
		Hispanic	299	0.92
		Limited English Proficient	317	0.84
		Low Income	3988	0.92
		Native Hawaiian/Other Pacific	30	0.91
		Special Education	1116	0.89
		White, Non-Hispanic	8632	0.92
6	Reading	All Students	10377	0.91
		American Indian	1207	0.90
		Asian	83	0.91
		Black or African American	126	0.90
		Hispanic	298	0.91
		Limited English Proficient	316	0.85
		Low Income	3998	0.91
		Native Hawaiian/Other Pacific	29	0.89
		Special Education	1127	0.90
		White, Non-Hispanic	8634	0.90
7	Mathematics	All Students	10630	0.91
		American Indian	1167	0.89
		Asian	122	0.90
		Black or African American	92	0.89
		Hispanic	298	0.91
		Limited English Proficient	261	0.88
		Low Income	3950	0.90
		Native Hawaiian/Other Pacific	28	0.94
		Special Education	1096	0.87
		White, Non-Hispanic	8923	0.91

continued

<i>Grade</i>	<i>Content Area</i>	<i>Subgroup</i>	<i>N</i>	<i>(a)</i>
7	Reading	All Students	10649	0.92
		American Indian	1179	0.92
		Asian	121	0.92
		Black or African American	91	0.91
		Hispanic	296	0.92
		Limited English Proficient	266	0.90
		Low Income	3962	0.92
		Native Hawaiian/Other Pacific	28	0.93
		Special Education	1109	0.90
		White, Non-Hispanic	8934	0.91
Mathematics	Mathematics	All Students	10622	0.91
		American Indian	1152	0.89
		Asian	108	0.93
		Black or African American	100	0.88
		Hispanic	272	0.90
		Limited English Proficient	279	0.85
		Low Income	3818	0.90
		Native Hawaiian/Other Pacific	23	0.92
		Special Education	1116	0.86
		White, Non-Hispanic	8966	0.91
8	Reading	All Students	10635	0.92
		American Indian	1157	0.92
		Asian	107	0.93
		Black or African American	100	0.90
		Hispanic	271	0.92
		Limited English Proficient	278	0.89
		Low Income	3824	0.92
		Native Hawaiian/Other Pacific	23	0.91
		Special Education	1128	0.90
		White, Non-Hispanic	8976	0.91
Science	Science	All Students	10649	0.88
		American Indian	1154	0.86
		Asian	108	0.87
		Black or African American	100	0.86
		Hispanic	273	0.87
		Limited English Proficient	280	0.81
		Low Income	3831	0.88
		Native Hawaiian/Other Pacific	23	0.90
		Special Education	1151	0.85
		White, Non-Hispanic	8990	0.87
10	Mathematics	All Students	10590	0.90
		American Indian	1032	0.84
		Asian	83	0.91
		Black or African American	78	0.86
		Hispanic	241	0.87
		Limited English Proficient	225	0.54
		Low Income	3080	0.87
		Native Hawaiian/Other Pacific	16	0.57
		Special Education	1002	0.75
		White, Non-Hispanic	9139	0.90

continued

<i>Grade</i>	<i>Content Area</i>	<i>Subgroup</i>	<i>N</i>	<i>(a)</i>
10	Reading	All Students	10606	0.91
		American Indian	1036	0.91
		Asian	84	0.91
		Black or African American	78	0.90
		Hispanic	243	0.90
		Limited English Proficient	225	0.83
		Low Income	3090	0.91
		Native Hawaiian/Other Pacific	16	0.84
		Special Education	1007	0.88
		White, Non-Hispanic	9148	0.90
10	Science	All Students	10621	0.90
		American Indian	1036	0.87
		Asian	82	0.91
		Black or African American	78	0.88
		Hispanic	241	0.88
		Limited English Proficient	223	0.66
		Low Income	3093	0.89
		Native Hawaiian/Other Pacific	17	0.88
		Special Education	1045	0.84
		White, Non-Hispanic	9166	0.90

¹Only subgroups with sample size ≥ 10 reported

**Table I-2. 2008-09 MontCAS: Common Item
Reliability and Stratified Reliability by Grade and Content Area**

<i>Grade</i>	<i>Content Area</i>	<i>Alpha</i>	<i>MCalpha</i>	<i>Nmc</i>	<i>ORalpha</i>	<i>Nor</i>	<i>StratAlpha</i>
3	Mathematics	0.91	0.90	55	0.57	5 (11)	0.91
	Reading	0.90	0.90	52	0.57	2 (8)	0.91
4	Mathematics	0.91	0.90	55	0.6	5 (11)	0.91
	Reading	0.91	0.91	52	0.59	2 (8)	0.91
	Science	0.85	0.85	53	0.32	2 (8)	0.85
5	Mathematics	0.91	0.90	55	0.6	5 (11)	0.91
	Reading	0.91	0.91	52	0.58	2 (8)	0.92
6	Mathematics	0.92	0.91	55	0.65	5 (11)	0.92
	Reading	0.91	0.91	52	0.64	2 (8)	0.92
7	Mathematics	0.91	0.90	55	0.56	5 (11)	0.91
	Reading	0.92	0.92	52	0.67	2 (8)	0.93
8	Mathematics	0.91	0.89	55	0.67	5 (11)	0.91
	Reading	0.92	0.92	52	0.73	2 (8)	0.93
	Science	0.88	0.87	53	0.58	2 (8)	0.89
10	Mathematics	0.90	0.87	54	0.65	5 (11)	0.90
	Reading	0.91	0.90	52	0.72	2 (8)	0.91
	Science	0.90	0.90	53	0.51	2 (8)	0.91

Table I-3. 2008–09 MontCAS: Alpha Reliability by Grade, Content Area, Item Type, and Form

Grade	Content Area	Stat	Form1	Form2	Form3	Form4	Form5	Form6	Form7	Form8
3	Mathematics	Form Alpha	0.92	0.93	0.92	0.92	0.92	0.91		
		MC Alpha	0.61	0.61	0.58	0.54	0.52	0.47	0.64	0.58
		CR Alpha	0.41	0.50	0.46	0.54	0.48	0.51		
		Item Type Alpha	0.97	0.98	0.97	0.97	0.96	0.96		
		Common Alpha	0.91	0.92	0.91	0.91	0.91	0.90	0.91	0.92
		Matrix Alpha	0.65	0.69	0.65	0.66	0.63	0.60		
	Reading	Admin Type Alpha	0.89	0.90	0.88	0.88	0.87	0.86		
		Form Alpha	0.93	0.94	0.93	0.93	0.93	0.93	0.92	0.94
		MC Alpha	0.79	0.80	0.75	0.80	0.77	0.78	0.71	0.82
		CR Alpha								
4	Mathematics	Item Type Alpha								
		Common Alpha	0.91	0.91	0.91	0.90	0.90	0.90	0.90	0.91
		Matrix Alpha	0.81	0.81	0.77	0.81	0.79	0.79	0.72	0.82
		Admin Type Alpha	0.85	0.87	0.85	0.86	0.85	0.85	0.84	0.86
		Form Alpha	0.93	0.92	0.92	0.92	0.92	0.92		
		MC Alpha	0.59	0.53	0.65	0.58	0.58	0.55	0.54	0.49
	Reading	CR Alpha	0.53	0.44	0.50	0.57	0.54	0.62		
		Item Type Alpha	0.97	0.97	0.97	0.97	0.97	0.98		
		Common Alpha	0.91	0.91	0.91	0.90	0.91	0.91	0.91	0.91
		Matrix Alpha	0.67	0.64	0.70	0.67	0.69	0.70		
5	Mathematics	Admin Type Alpha	0.89	0.87	0.88	0.87	0.88	0.88		
		Form Alpha	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
		MC Alpha	0.78	0.79	0.77	0.79	0.79	0.79	0.78	0.79
		CR Alpha								
		Item Type Alpha								
		Common Alpha	0.91	0.91	0.91	0.90	0.90	0.90	0.91	0.90
	Reading	Matrix Alpha	0.79	0.78	0.79	0.80	0.79	0.80	0.79	0.79
		Admin Type Alpha	0.87	0.86	0.87	0.85	0.86	0.86	0.86	0.86
	Science	Form Alpha	0.90	0.90	0.89	0.87	0.89	0.90	0.90	0.89
		MC Alpha	0.72	0.76	0.73	0.66	0.71	0.75	0.75	0.66
		CR Alpha								
		Item Type Alpha								
		Common Alpha	0.86	0.85	0.85	0.84	0.85	0.85	0.86	0.86
		Matrix Alpha	0.73	0.76	0.74	0.65	0.73	0.75	0.76	0.68
		Admin Type Alpha	0.80	0.78	0.78	0.76	0.79	0.78	0.80	0.78

continued

<i>Grade</i>	<i>Content Area</i>	<i>Stat</i>	<i>Form1</i>	<i>Form2</i>	<i>Form3</i>	<i>Form4</i>	<i>Form5</i>	<i>Form6</i>	<i>Form7</i>	<i>Form8</i>
5	Reading	Form Alpha	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
		MC Alpha	0.59	0.68	0.67	0.61	0.62	0.59	0.52	0.57
		CR Alpha	0.49	0.52	0.58	0.50	0.43	0.55	0.54	0.58
		Item Type Alpha	0.98	0.98	0.98	0.98	0.98	0.97	0.98	0.97
		Common Alpha	0.91	0.92	0.92	0.91	0.91	0.91	0.92	0.91
		Matrix Alpha	0.69	0.73	0.75	0.70	0.70	0.70	0.65	0.70
		Admin Type Alpha	0.89	0.90	0.89	0.89	0.89	0.88	0.89	0.89
		Form Alpha	0.94	0.94	0.93	0.93	0.94	0.93	0.93	0.93
		MC Alpha	0.81	0.77	0.78	0.79	0.82	0.76	0.78	0.78
		CR Alpha								
6	Mathematics	Item Type Alpha								
		Common Alpha	0.91	0.92	0.92	0.90	0.92	0.90	0.91	0.91
		Matrix Alpha	0.82	0.78	0.78	0.80	0.83	0.77	0.78	0.79
		Admin Type Alpha	0.87	0.87	0.87	0.86	0.88	0.85	0.87	0.86
		Form Alpha	0.93	0.94			0.93	0.94	0.93	
		MC Alpha	0.61	0.54	0.62	0.55	0.62	0.67	0.55	0.60
		CR Alpha	0.53	0.56			0.61	0.54	0.57	
		Item Type Alpha					0.98	0.98	0.98	
		Common Alpha	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92
		Matrix Alpha	0.67	0.72			0.73	0.74	0.68	
7	Mathematics	Admin Type Alpha	0.90	0.90			0.90	0.90	0.90	
		Form Alpha	0.95	0.94	0.93	0.94	0.93	0.94	0.93	0.93
		MC Alpha	0.84	0.81	0.78	0.81	0.80	0.83	0.76	0.80
		CR Alpha								
		Item Type Alpha								
		Common Alpha	0.92	0.91	0.91	0.91	0.91	0.91	0.90	0.90
		Matrix Alpha	0.85	0.82	0.79	0.82	0.80	0.83	0.76	0.81
		Admin Type Alpha	0.89	0.87	0.87	0.86	0.87	0.87	0.86	0.85
		Form Alpha	0.93		0.93	0.93	0.93		0.93	0.92
		MC Alpha	0.65	0.62	0.60	0.66	0.62	0.72	0.60	0.47

continued

<i>Grade</i>	<i>Content Area</i>	<i>Stat</i>	<i>Form1</i>	<i>Form2</i>	<i>Form3</i>	<i>Form4</i>	<i>Form5</i>	<i>Form6</i>	<i>Form7</i>	<i>Form8</i>
7	Reading	Form Alpha	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.94
		MC Alpha	0.84	0.82	0.83	0.81	0.83	0.83	0.83	0.80
		CR Alpha								
		Item Type Alpha								
		Common Alpha	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	Mathematics	Matrix Alpha	0.84	0.82	0.83	0.81	0.83	0.83	0.83	0.81
		Admin Type Alpha	0.89	0.88	0.88	0.88	0.88	0.87	0.88	0.87
		Form Alpha	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93
		MC Alpha	0.51	0.56	0.52	0.49	0.47	0.47	0.59	0.63
		CR Alpha	0.47	0.28	0.62	0.54	0.57	0.61	0.59	0.57
8	Reading	Item Type Alpha	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
		Common Alpha	0.92	0.91	0.91	0.91	0.91	0.91	0.91	0.91
		Matrix Alpha	0.65	0.65	0.70	0.65	0.67	0.66	0.71	0.73
		Admin Type Alpha	0.90	0.89	0.89	0.89	0.89	0.88	0.89	0.89
		Form Alpha	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.94
	Science	MC Alpha	0.83	0.82	0.80	0.84	0.83	0.82	0.80	0.85
		CR Alpha								
		Item Type Alpha								
		Common Alpha	0.93	0.92	0.92	0.91	0.92	0.91	0.92	0.92
		Matrix Alpha	0.84	0.83	0.81	0.84	0.83	0.82	0.81	0.85
10	Mathematics	Admin Type Alpha	0.89	0.88	0.87	0.87	0.88	0.86	0.87	0.88
		Form Alpha	0.92	0.91	0.91	0.91	0.91	0.91	0.90	0.91
		MC Alpha	0.73	0.68	0.67	0.71	0.73	0.68	0.64	0.72
		CR Alpha	0.89	0.88	0.88	0.88	0.88	0.88	0.88	0.88
		Item Type Alpha	0.75	0.72	0.69	0.72	0.75	0.72	0.67	0.73
	Mathematics	Common Alpha	0.84	0.83	0.82	0.83	0.81	0.82	0.82	0.83
		Form Alpha	0.92	0.91	0.91	0.92	0.92	0.92	0.92	0.92
		MC Alpha	0.58	0.60	0.44	0.55	0.59	0.59	0.53	0.55
		CR Alpha	0.50	0.41	0.60	0.55	0.57	0.52	0.56	0.56
		Item Type Alpha	0.97	0.97	0.98	0.98	0.98	0.98	0.98	0.98

continued

<i>Grade</i>	<i>Content Area</i>	<i>Stat</i>	<i>Form1</i>	<i>Form2</i>	<i>Form3</i>	<i>Form4</i>	<i>Form5</i>	<i>Form6</i>	<i>Form7</i>	<i>Form8</i>
10	Reading	Form Alpha	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.93
		MC Alpha	0.80	0.80	0.82	0.82	0.81	0.81	0.83	0.81
		CR Alpha								
		Item Type Alpha								
		Common Alpha	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.90
	Science	Matrix Alpha	0.81	0.81	0.82	0.83	0.82	0.82	0.83	0.82
		Admin Type Alpha	0.86	0.86	0.86	0.86	0.87	0.87	0.88	0.86
		Form Alpha	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.92
		MC Alpha	0.69	0.73	0.73	0.69	0.68	0.76	0.72	0.69
		CR Alpha								
		Item Type Alpha								
		Common Alpha	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.90
		Matrix Alpha	0.72	0.74	0.75	0.71	0.71	0.77	0.75	0.71
		Admin Type Alpha	0.85	0.84	0.86	0.86	0.85	0.86	0.86	0.85

**Table I-4. 2008–09 MontCAS: Common Item Reporting
Subcategory Alpha Reliabilities, with Points Possible by Grade and Content Area**

Grade	Content Area	Reporting Subcategory	Points Possible	α
3	Mathematics	Problem Solving		
		Numbers and Operations	22	0.81
		Algebra	8	0.58
		Geometry	10	0.55
		Measurement	10	0.50
		Data Analysis, Statistics, and Probability	8	0.47
		Patterns, Relations, and Functions	8	0.69
3	Reading	Students construct meaning as they comprehend, interpret, and respond to what they read	19	0.78
		Students apply a range of skills and strategies to read	17	0.74
		Students select, read and respond to print and non-print material for a variety of purposes	12	0.64
		Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	12	0.56
		Problem Solving		
		Numbers and Operations	22	0.82
		Algebra	8	0.59
4	Mathematics	Geometry	10	0.54
		Measurement	10	0.51
		Data Analysis, Statistics, and Probability	8	0.39
		Patterns, Relations, and Functions	8	0.64
		Students construct meaning as they comprehend, interpret, and respond to what they read	20	0.74
		Students apply a range of skills and strategies to read	21	0.78
		Students select, read and respond to print and non-print material for a variety of purposes	10	0.61
4	Reading	Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	9	0.61
		Scientific Investigations	14	0.64
		Physical Science	14	0.51
		Life Science	14	0.60
		Earth/Space Science	14	0.49
		Impact on Society	3	0.23
		Historical Development	2	0.28
5	Mathematics	Problem Solving		
		Numbers and Operations	21	0.81
		Algebra	8	0.61
		Geometry	11	0.55
		Measurement	8	0.58
		Data Analysis, Statistics, and Probability	10	0.58
		Patterns, Relations, and Functions	8	0.58

continued

Grade	Content Area	Reporting Subcategory	Points Possible	α
5	Reading	Students construct meaning as they comprehend, interpret, and respond to what they read	19	0.74
		Students apply a range of skills and strategies to read	19	0.79
		Students select, read and respond to print and non-print material for a variety of purposes	12	0.71
	Mathematics	Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	10	0.56
		Problem Solving		
		Numbers and Operations	20	0.79
6	Reading	Algebra	8	0.69
		Geometry	11	0.56
		Measurement	9	0.59
		Data Analysis, Statistics, and Probability	10	0.66
		Patterns, Relations, and Functions	8	0.63
		Students construct meaning as they comprehend, interpret, and respond to what they read	22	0.78
7	Mathematics	Students apply a range of skills and strategies to read	15	0.74
		Students select, read and respond to print and non-print material for a variety of purposes	9	0.67
		Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	14	0.64
		Problem Solving		
		Numbers and Operations	18	0.71
		Algebra	8	0.62
8	Reading	Geometry	12	0.71
		Measurement	8	0.60
		Data Analysis, Statistics, and Probability	12	0.67
		Patterns, Relations, and Functions	8	0.49
		Students construct meaning as they comprehend, interpret, and respond to what they read	20	0.79
		Students apply a range of skills and strategies to read	21	0.79
8	Mathematics	Students select, read and respond to print and non-print material for a variety of purposes	9	0.69
		Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	10	0.63
		Problem Solving		
		Numbers and Operations	18	0.77
		Algebra	8	0.71
		Geometry	12	0.58
8	Reading	Measurement	8	0.50
		Data Analysis, Statistics, and Probability	12	0.63
		Patterns, Relations, and Functions	8	0.49
		Students construct meaning as they comprehend, interpret, and respond to what they read	19	0.74
		Students apply a range of skills and strategies to read	18	0.80
		Students select, read and respond to print and non-print material for a variety of purposes	12	0.64
		Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	11	0.72

continued

<i>Grade</i>	<i>Content Area</i>	<i>Reporting Subcategory</i>	<i>Points Possible</i>	α
8	Science	Scientific Investigations	14	0.72
		Physical Science	14	0.60
		Life Science	14	0.59
		Earth/Space Science	14	0.63
		Impact on Society	3	0.28
		Historical Development	2	0.19
10	Mathematics	Problem Solving	13	0.69
		Numbers and Operations	11	0.62
		Algebra	13	0.61
		Geometry	8	0.45
		Measurement	13	0.57
		Data Analysis, Statistics, and Probability	8	0.52
10	Reading	Students construct meaning as they comprehend, interpret, and respond to what they read	16	0.75
		Students apply a range of skills and strategies to read	19	0.77
		Students select, read and respond to print and non-print material for a variety of purposes	12	0.68
		Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	13	0.64
10	Science	Scientific Investigations	14	0.71
		Physical Science	14	0.64
		Life Science	14	0.68
		Earth/Space Science	14	0.69
		Impact on Society	2	0.44
		Historical Development	3	0.43

Appendix J—DECISION ACCURACY AND CONSISTENCY RESULTS

Table J-1. 2008–09 MontCAS: Accuracy and Consistency—Mathematics Grade 3

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.778	0.699	0.578
Indices Conditional on Level	Novice Nearing Proficiency Proficient Advanced	Accuracy	Consistency
		0.836	0.770
		0.595	0.482
		0.764	0.694
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.948	0.927
		0.923	0.893
		0.905	0.870
Accuracy and Consistency of Classification Indices			

Table J-2. 2008–09 MontCAS: Accuracy and Consistency—Mathematics Grade 4

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.771	0.688	0.563
Indices Conditional on Level	Novice Nearing Proficiency Proficient Advanced	Accuracy	Consistency
		0.818	0.738
		0.627	0.517
		0.751	0.678
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.948	0.927
		0.915	0.882
		0.906	0.871
Accuracy and Consistency of Classification Indices			

Table J-3. 2008–09 MontCAS: Accuracy and Consistency—Mathematics Grade 5

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.783	0.703	0.585
Indices Conditional on Level	Novice Nearing Proficiency Proficient Advanced	Accuracy	Consistency
		0.797	0.712
		0.637	0.530
		0.747	0.667
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.947	0.925
		0.919	0.888
		0.916	0.883
Accuracy and Consistency of Classification Indices			

Table J-4. 2008–09 MontCAS: Accuracy and Consistency—Mathematics Grade 6

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.786	0.707	0.595
Indices Conditional on Level	Novice	Accuracy	Consistency
	Nearing Proficiency	0.821	0.744
	Proficient	0.653	0.548
	Advanced	0.738	0.654
Indices for Dichotomous Decisions Around Cut Points	Novice	0.904	0.834
	NP : NP	Accuracy	Consistency
	NP : P	0.947	0.026
	P : A	0.919	0.044
Indices for Dichotomous Decisions Around Cut Points	NP : P	0.919	0.037
	P : A	0.919	0.031

Table J-5. 2008–09 MontCAS: Accuracy and Consistency—Mathematics Grade 7

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.773	0.692	0.571
Indices Conditional on Level	Novice	Accuracy	Consistency
	Nearing Proficiency	0.783	0.694
	Proficient	0.612	0.503
	Advanced	0.728	0.639
Indices for Dichotomous Decisions Around Cut Points	Novice	0.907	0.839
	NP : NP	Accuracy	Consistency
	NP : P	0.939	0.030
	P : A	0.915	0.047
Indices for Dichotomous Decisions Around Cut Points	NP : P	0.917	0.051
	P : A	0.917	0.031

Table J-6. 2008–09 MontCAS: Accuracy and Consistency—Mathematics Grade 8

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.775	0.692	0.578
Indices Conditional on Level	Novice	Accuracy	Consistency
	Nearing Proficiency	0.789	0.701
	Proficient	0.673	0.573
	Advanced	0.749	0.666
Indices for Dichotomous Decisions Around Cut Points	Novice	0.896	0.814
	NP : NP	Accuracy	Consistency
	NP : P	0.939	0.030
	P : A	0.913	0.049
Indices for Dichotomous Decisions Around Cut Points	NP : P	0.923	0.050
	P : A	0.913	0.038
	P : A	0.923	0.028

Table J-7. 2008–09 MontCAS: Accuracy and Consistency—Mathematics Grade 10

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.770	0.684	0.548
Indices Conditional on Level	<i>Novice</i> <i>Nearing Proficiency</i> <i>Proficient</i> <i>Advanced</i>	Accuracy	Consistency
		0.783	0.677
		0.698	0.607
		0.779	0.711
Indices for Dichotomous Decisions Around Cut Points	<i>Novice</i> <i>Nearing Proficiency</i> <i>Proficient</i> <i>Advanced</i>	0.861	0.734
		Accuracy	Consistency
		Accuracy	Consistency
		0.947	0.925
<i>N : NP</i>	<i>NP : P</i>	0.024	0.029
		0.898	0.859
<i>P : A</i>		0.056	0.045
		0.925	0.896
		0.052	0.023

Table J-8. 2008–09 MontCAS: Accuracy and Consistency—Reading Grade 3

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.836	0.772	0.632
Indices Conditional on Level	<i>Novice</i> <i>Nearing Proficiency</i> <i>Proficient</i> <i>Advanced</i>	Accuracy	Consistency
		0.727	0.571
		0.714	0.610
		0.815	0.761
Indices for Dichotomous Decisions Around Cut Points	<i>Novice</i> <i>Nearing Proficiency</i> <i>Proficient</i> <i>Advanced</i>	0.901	0.841
		Accuracy	Consistency
		Accuracy	Consistency
		0.984	0.977
<i>N : NP</i>	<i>NP : P</i>	0.006	0.010
		0.951	0.931
<i>P : A</i>		0.024	0.025
		0.902	0.864
		0.058	0.041

Table J-9. 2008–09 MontCAS: Accuracy and Consistency—Reading Grade 4

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.824	0.755	0.616
Indices Conditional on Level	<i>Novice</i> <i>Nearing Proficiency</i> <i>Proficient</i> <i>Advanced</i>	Accuracy	Consistency
		0.763	0.630
		0.703	0.597
		0.799	0.742
Indices for Dichotomous Decisions Around Cut Points	<i>Novice</i> <i>Nearing Proficiency</i> <i>Proficient</i> <i>Advanced</i>	0.900	0.832
		Accuracy	Consistency
		Accuracy	Consistency
		0.980	0.971
<i>N : NP</i>	<i>NP : P</i>	0.008	0.012
		0.942	0.919
<i>P : A</i>		0.029	0.029
		0.902	0.864
		0.060	0.038

Table J-10. 2008–09 MontCAS: Accuracy and Consistency—Reading Grade 5

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.845	0.784	0.646
Indices Conditional on Level	Novice Nearing Proficiency Proficient Advanced	Accuracy	Consistency
		0.775	0.651
		0.718	0.614
		0.789	0.723
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.984	0.977
		0.953	0.934
		0.908	0.872
Accuracy			
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.984	0.977
		0.953	0.934
		0.908	0.872

Table J-11. 2008–09 MontCAS: Accuracy and Consistency—Reading Grade 6

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.836	0.773	0.628
Indices Conditional on Level	Novice Nearing Proficiency Proficient Advanced	Accuracy	Consistency
		0.766	0.629
		0.651	0.531
		0.793	0.735
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.981	0.973
		0.949	0.928
		0.906	0.869
Accuracy			
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.981	0.973
		0.949	0.928
		0.906	0.869

Table J-12. 2008–09 MontCAS: Accuracy and Consistency—Reading Grade 7

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.844	0.783	0.648
Indices Conditional on Level	Novice Nearing Proficiency Proficient Advanced	Accuracy	Consistency
		0.783	0.675
		0.701	0.596
		0.792	0.725
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.980	0.971
		0.954	0.936
		0.910	0.874
Accuracy			
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.980	0.971
		0.954	0.936
		0.910	0.874

Table J-13. 2008–09 MontCAS: Accuracy and Consistency—Reading Grade 8

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.832	0.768	0.628
Indices Conditional on Level	Novice Nearing Proficiency Proficient Advanced	Accuracy	Consistency
		0.817	0.732
		0.666	0.553
		0.760	0.682
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.976	0.965
		0.951	0.931
		0.905	0.868

Table J-14. 2008–09 MontCAS: Accuracy and Consistency—Reading Grade 10

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.814	0.745	0.610
Indices Conditional on Level	Novice Nearing Proficiency Proficient Advanced	Accuracy	Consistency
		0.825	0.743
		0.632	0.516
		0.759	0.682
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.969	0.956
		0.943	0.921
		0.902	0.864

Table J-15. 2008–09 MontCAS: Accuracy and Consistency—Science Grade 4

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.776	0.690	0.511
Indices Conditional on Level	Novice Nearing Proficiency Proficient Advanced	Accuracy	Consistency
		0.729	0.561
		0.732	0.650
		0.794	0.739
Indices for Dichotomous Decisions Around Cut Points	$N : NP$ $NP : P$ $P : A$	Accuracy	Consistency
		0.968	0.954
		0.885	0.842
		0.923	0.893

Table J-16. 2008–09 MontCAS: Accuracy and Consistency—Science Grade 8

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.775	0.689	0.538
Indices Conditional on Level	Accuracy		Consistency
	<i>Novice</i>	0.784	0.671
	<i>Nearing Proficiency</i>	0.723	0.637
	<i>Proficient</i>	0.794	0.734
Indices for Dichotomous Decisions Around Cut Points	<i>Advanced</i>	0.827	0.664
	Accuracy		Consistency
	Accuracy	<i>False Positives</i>	<i>False Negatives</i>
	0.953	0.021	0.027
<i>N : NP</i>	0.896	0.057	0.047
	<i>NP : P</i>	0.926	0.053
<i>P : A</i>			0.021
			0.897

Table J-17. 2008–09 MontCAS: Accuracy and Consistency—Science Grade 10

Accuracy and Consistency of Classification Indices			
Overall Indices	Accuracy	Consistency	Kappa (κ)
	0.757	0.670	0.554
Indices Conditional on Level	Accuracy		Consistency
	<i>Novice</i>	0.832	0.769
	<i>Nearing Proficiency</i>	0.732	0.649
	<i>Proficient</i>	0.657	0.552
Indices for Dichotomous Decisions Around Cut Points	<i>Advanced</i>	0.862	0.741
	Accuracy		Consistency
	Accuracy	<i>False Positives</i>	<i>False Negatives</i>
	0.926	0.038	0.036
<i>N : NP</i>	0.904	0.058	0.038
	<i>NP : P</i>	0.927	0.050
<i>P : A</i>			0.024
			0.899

Appendix K—SCALED SCORE PERCENTAGE AND CUMULATIVE PERCENTAGE WITH PERFORMANCE LEVEL DISTRIBUTIONS ACROSS RAW AND SCALED SCORE RANGES

Table K-1. 2008–09 MontCAS: Score Distribution—Mathematics Grade 3

Scaled Score	Percentage	Cumulative Percentage
200	6.68	6.68
203	1.16	7.84
206	0.97	8.81
209	1.12	9.93
212	1.42	11.36
215	1.10	12.46
218	1.23	13.69
221	1.33	15.01
224	1.47	16.49
228	1.50	17.99
231	1.80	19.80
234	1.73	21.52
237	1.97	23.49
240	2.20	25.69
243	2.22	27.91
246	2.21	30.13
249	2.40	32.53
252	2.39	34.92
255	2.80	37.72
258	2.79	40.51
261	2.98	43.48
264	2.88	46.36
267	2.82	49.18
270	3.33	52.51
273	2.65	55.16
276	3.33	58.49
279	3.35	61.83
282	3.50	65.34
284	3.45	68.79
287	3.40	72.19
290	3.77	75.95
293	3.49	79.44
296	3.45	82.90
299	3.06	85.96
300	14.04	100.00

Table K-2. 2008–09 MontCAS: Score Distribution—Mathematics Grade 4

Scaled Score	Percentage	Cumulative Percentage
200	5.27	5.27
202	0.80	6.06
205	1.04	7.11
208	1.03	8.13
211	1.31	9.45
214	1.17	10.61
217	1.26	11.88
220	1.43	13.31
223	1.49	14.80
226	1.66	16.46
228	1.68	18.13
231	1.80	19.93
234	1.95	21.89
237	1.93	23.81
240	2.17	25.99
243	2.14	28.13
246	2.37	30.49
249	2.35	32.84
252	2.85	35.68
255	2.61	38.29
258	2.95	41.24
261	2.85	44.09
264	3.15	47.25
267	3.00	50.24
271	3.18	53.42
274	2.91	56.34
277	3.14	59.48
280	3.07	62.54
283	3.18	65.72
286	3.05	68.77
290	3.17	71.94
293	3.44	75.38
296	3.30	78.69
299	2.92	81.61
300	18.39	100.00

Table K-3. 2008–09 MontCAS: Score Distribution—Mathematics Grade 5

Scaled Score	Percentage	Cumulative Percentage
200	3.18	3.18
203	1.18	4.36
206	1.17	5.53
209	1.21	6.73
212	1.22	7.95
215	1.59	9.55
218	1.47	11.02
221	1.63	12.65
224	1.51	14.16
227	1.81	15.96
230	1.66	17.62
232	1.70	19.33
235	1.89	21.22
238	2.17	23.39
241	2.24	25.64
244	2.06	27.69
247	2.32	30.01
249	2.62	32.63
253	2.44	35.07
256	2.59	37.66
259	2.27	39.93
261	2.49	42.42
264	2.86	45.28
267	2.97	48.25
270	2.61	50.86
273	2.60	53.45
275	3.03	56.49
278	2.60	59.09
281	2.72	61.80
284	2.53	64.33
287	2.69	67.02
289	2.58	69.60
292	2.52	72.12
295	2.65	74.77
298	2.63	77.40
300	22.60	100.00

Table K-4. 2008–09 MontCAS: Score Distribution—Mathematics Grade 6

Scaled Score	Percentage	Cumulative Percentage
200	3.16	3.16
201	1.20	4.36
204	1.24	5.60
207	1.38	6.98
210	1.38	8.36
213	1.55	9.91
215	1.36	11.27
218	1.61	12.88
221	1.71	14.59
224	1.61	16.20
227	1.70	17.90
230	1.94	19.83
233	1.50	21.34
236	2.23	23.57
238	2.06	25.63
241	2.32	27.95
244	2.01	29.96
247	2.55	32.50
249	2.37	34.88
253	2.32	37.20
256	2.31	39.51
258	2.41	41.92
261	3.04	44.96
264	2.79	47.75
267	2.41	50.16
270	2.85	53.01
273	2.84	55.86
276	3.04	58.89
279	2.56	61.45
282	2.87	64.32
285	2.59	66.92
288	2.68	69.60
291	2.80	72.39
294	2.82	75.21
296	2.80	78.01
299	2.06	80.07
300	19.93	100.00

Table K-5. 2008–09 MontCAS: Score Distribution—Mathematics Grade 7

Scaled Score	Percentage	Cumulative Percentage
200	2.79	2.79
203	0.88	3.68
206	1.23	4.91
209	1.25	6.16
212	1.37	7.54
215	1.54	9.08
218	1.82	10.89
221	1.81	12.70
224	1.88	14.58
227	2.16	16.75
230	2.17	18.92
233	2.34	21.26
236	2.27	23.53
239	2.32	25.85
242	2.42	28.27
246	2.53	30.80
249	2.50	33.30
252	2.52	35.82
255	2.72	38.54
258	2.72	41.26
261	2.77	44.03
264	2.98	47.01
267	2.79	49.80
270	3.04	52.84
273	2.89	55.73
276	2.63	58.36
279	2.78	61.14
282	2.48	63.62
285	2.56	66.18
288	2.52	68.70
291	2.31	71.02
294	2.46	73.48
297	2.40	75.88
300	24.12	100.00

Table K-6. 2008–09 MontCAS: Score Distribution—Mathematics Grade 8

Scaled Score	Percentage	Cumulative Percentage
200	1.48	1.48
202	0.70	2.17
204	0.89	3.07
207	1.06	4.13
209	1.16	5.29
212	1.32	6.61
214	1.56	8.17
217	1.66	9.83
219	1.76	11.59
222	1.88	13.47
224	1.75	15.22
227	1.88	17.11
229	1.93	19.04
232	2.38	21.42
234	2.29	23.71
236	2.20	25.91
239	2.54	28.45
241	2.25	30.70
244	2.69	33.39
246	2.92	36.31
249	2.72	39.03
251	2.62	41.65
254	2.66	44.31
256	2.60	46.91
259	2.49	49.41
261	2.73	52.14
264	2.77	54.90
266	2.54	57.45
269	2.53	59.98
271	2.35	62.33
274	2.46	64.79
276	2.81	67.60
279	2.46	70.05
281	2.51	72.57
284	2.28	74.84
286	2.20	77.05
288	2.00	79.04
291	2.36	81.41
293	2.10	83.51
296	1.96	85.46
298	1.81	87.27
300	12.73	100.00

Table K-7. 2008–09 MontCAS: Score Distribution—Mathematics Grade 10

Scaled Score	Percentage	Cumulative Percentage
200	0.08	0.08
201	0.04	0.11
204	0.07	0.18
206	0.21	0.39
209	0.20	0.59
211	0.42	1.00
213	0.58	1.58
216	0.94	2.52
218	1.45	3.98
220	1.61	5.59
222	1.77	7.36
224	2.46	9.82
227	2.74	12.56
229	2.84	15.40
231	3.30	18.70
233	3.27	21.96
235	3.28	25.24
238	3.63	28.87
240	3.50	32.37
242	3.47	35.85
244	3.11	38.95
246	3.26	42.21
248	2.91	45.12
250	3.14	48.25
252	3.11	51.36
254	2.81	54.17
257	2.50	56.68
259	2.76	59.43
261	2.63	62.06
263	2.46	64.52
265	2.45	66.97
267	2.35	69.32
269	2.35	71.67
271	2.12	73.80
273	2.21	76.01
275	1.78	77.79
278	1.63	79.42
280	1.64	81.07
282	1.79	82.86
284	1.66	84.52
287	1.53	86.05
289	1.30	87.36
291	1.40	88.75
293	1.26	90.01
296	1.26	91.27
298	1.01	92.28
300	7.72	100.00

Table K-8. 2008–09 MontCAS: Score Distribution—Reading Grade 3

Scaled Score	Percentage	Cumulative Percentage
200	0.04	0.04
205	0.04	0.08
207	0.09	0.17
210	0.18	0.34
212	0.20	0.54
215	0.22	0.76
217	0.31	1.08
220	0.44	1.52
222	0.67	2.19
224	0.81	3.00
227	0.93	3.93
230	0.94	4.87
232	0.82	5.69
235	1.05	6.74
237	1.32	8.06
240	1.17	9.23
242	1.42	10.65
244	1.39	12.04
247	1.69	13.73
249	1.51	15.24
252	1.87	17.11
254	1.73	18.84
256	2.00	20.83
259	2.25	23.08
261	2.34	25.42
263	2.09	27.51
266	2.39	29.90
268	2.73	32.63
270	2.47	35.10
273	2.94	38.04
275	3.24	41.28
277	3.11	44.39
280	3.40	47.79
282	3.77	51.56
284	3.79	55.35
286	3.67	59.02
289	3.87	62.89
291	4.06	66.95
293	3.76	70.71
295	4.09	74.80
298	4.18	78.97
300	21.03	100.00

Table K-9. 2008–09 MontCAS: Score Distribution—Reading Grade 4

Scaled Score	Percentage	Cumulative Percentage
200	0.19	0.19
201	0.13	0.33
204	0.21	0.54
207	0.27	0.81
209	0.39	1.20
212	0.35	1.55
215	0.62	2.17
217	0.75	2.92
220	0.63	3.55
223	0.85	4.40
225	0.99	5.39
228	1.13	6.52
231	1.16	7.69
233	1.29	8.97
236	1.28	10.25
239	1.50	11.75
241	1.57	13.32
244	1.69	15.01
246	1.58	16.58
249	1.78	18.36
252	2.00	20.36
254	2.04	22.40
257	2.07	24.46
259	2.33	26.79
262	2.43	29.22
265	2.50	31.72
267	2.57	34.29
270	3.04	37.33
272	3.03	40.35
275	2.88	43.24
278	3.28	46.51
280	3.00	49.51
283	3.69	53.20
285	3.64	56.84
288	3.73	60.57
290	4.14	64.71
293	3.84	68.55
296	3.84	72.40
298	4.15	76.55
300	23.45	100.00

Table K-10. 2008–09 MontCAS: Score Distribution—Reading Grade 5

Scaled Score	Percentage	Cumulative Percentage
200	0.29	0.29
201	0.16	0.45
204	0.19	0.65
208	0.37	1.02
211	0.40	1.41
214	0.57	1.98
216	0.44	2.42
219	0.70	3.12
222	0.80	3.92
225	0.81	4.73
228	0.76	5.50
231	0.93	6.43
234	1.02	7.44
236	0.97	8.41
239	1.17	9.58
242	1.38	10.97
244	1.49	12.46
247	1.59	14.05
249	1.52	15.56
253	1.51	17.07
255	1.92	18.99
258	1.82	20.81
261	1.80	22.61
263	2.27	24.88
266	2.47	27.34
268	2.37	29.72
271	2.43	32.15
274	3.17	35.32
276	3.11	38.43
279	2.81	41.24
281	3.30	44.54
284	3.46	47.99
286	3.54	51.53
289	3.74	55.27
291	3.44	58.71
294	4.08	62.79
296	3.60	66.39
299	3.83	70.23
300	29.77	100.00

Table K-11. 2008–09 MontCAS: Score Distribution—Reading Grade 6

Scaled Score	Percentage	Cumulative Percentage
200	0.78	0.78
201	0.35	1.13
205	0.51	1.64
208	0.45	2.09
211	0.59	2.68
214	0.71	3.39
217	0.74	4.13
220	0.63	4.76
224	0.94	5.70
227	0.92	6.62
230	0.99	7.61
233	0.93	8.54
236	0.95	9.49
239	1.30	10.79
242	1.37	12.16
245	1.31	13.47
247	1.39	14.86
250	1.50	16.36
253	1.63	17.99
256	1.74	19.74
259	1.73	21.47
262	2.06	23.53
265	2.41	25.94
268	2.27	28.22
270	2.32	30.54
273	2.79	33.32
276	3.26	36.58
279	3.04	39.62
282	3.18	42.80
284	3.42	46.22
287	3.87	50.09
290	3.63	53.72
293	3.85	57.58
296	4.14	61.72
298	4.25	65.97
300	34.03	100.00

Table K-12. 2008–09 MontCAS: Score Distribution—Reading Grade 7

Scaled Score	Percentage	Cumulative Percentage
200	0.33	0.33
201	0.12	0.45
204	0.17	0.62
206	0.30	0.92
209	0.55	1.47
212	0.52	1.99
215	0.56	2.55
217	0.71	3.27
220	0.80	4.07
223	0.65	4.71
225	0.74	5.46
228	0.85	6.31
231	1.12	7.43
233	1.06	8.49
236	1.25	9.74
239	1.17	10.91
241	1.26	12.17
244	1.33	13.50
247	1.35	14.86
249	1.59	16.44
252	1.46	17.90
255	1.65	19.55
257	1.76	21.31
260	1.81	23.12
262	2.05	25.17
265	2.16	27.33
268	2.39	29.71
270	2.36	32.07
273	2.31	34.38
275	2.54	36.92
278	2.51	39.43
280	2.94	42.37
283	3.16	45.53
286	3.54	49.08
287	3.78	52.85
291	3.97	56.82
293	4.22	61.04
296	4.41	65.45
298	4.14	69.59
300	30.41	100.00

Table K-13. 2008–09 MontCAS: Score Distribution—Reading Grade 8

Scaled Score	Percentage	Cumulative Percentage
200	1.95	1.95
203	0.57	2.52
207	0.70	3.22
210	0.77	3.99
213	0.78	4.77
216	0.75	5.52
219	0.76	6.28
222	0.84	7.12
225	0.94	8.06
228	0.88	8.94
231	1.20	10.15
235	1.25	11.40
238	1.14	12.53
241	1.20	13.74
244	1.65	15.39
247	1.38	16.77
249	1.62	18.39
253	1.51	19.91
256	1.76	21.66
259	1.79	23.45
261	1.90	25.35
264	2.05	27.40
267	2.49	29.89
270	2.40	32.29
273	2.61	34.90
276	2.67	37.57
279	3.02	40.59
282	3.42	44.02
285	3.77	47.79
287	3.66	51.44
290	4.02	55.46
293	4.20	59.66
296	4.51	64.17
299	4.23	68.41
300	31.59	100.00

Table K-14. 2008–09 MontCAS: Score Distribution—Reading Grade 10

Scaled Score	Percentage	Cumulative Percentage
200	3.48	3.48
204	0.52	4.00
207	0.68	4.68
211	0.76	5.44
214	0.86	6.30
217	1.03	7.33
221	1.09	8.42
224	0.95	9.37
227	1.01	10.38
230	1.06	11.44
234	1.31	12.75
237	1.26	14.01
240	1.57	15.58
243	1.68	17.25
246	1.89	19.14
249	1.90	21.04
253	1.93	22.98
256	1.98	24.96
259	2.12	27.08
262	2.45	29.53
265	2.43	31.96
268	3.08	35.05
271	3.05	38.10
275	3.35	41.45
278	3.39	44.84
281	3.61	48.45
284	3.69	52.14
287	4.09	56.23
290	4.49	60.72
293	4.24	64.96
296	4.50	69.46
299	4.54	74.00
300	26.00	100.00

Table K-15. 2008–09 MontCAS: Score Distribution—Science Grade 4

Scaled Score	Percentage	Cumulative Percentage
200	0.35	0.35
201	0.28	0.63
204	0.24	0.87
206	0.33	1.21
209	0.41	1.62
211	0.44	2.06
213	0.44	2.50
216	0.70	3.20
218	0.90	4.10
220	0.80	4.90
222	0.97	5.87
224	1.01	6.88
226	1.11	7.99
228	1.30	9.29
230	1.54	10.83
232	1.65	12.48
234	2.03	14.51
236	2.08	16.59
238	2.31	18.89
240	2.47	21.36
243	2.56	23.92
245	2.93	26.84
247	3.41	30.25
249	3.64	33.89
251	3.56	37.45
253	4.08	41.53
255	3.92	45.45
258	4.44	49.89
260	4.38	54.27
262	4.72	58.99
265	4.43	63.42
267	4.81	68.24
270	4.48	72.72
273	4.21	76.93
275	4.02	80.95
278	3.85	84.79
281	3.59	88.38
284	2.75	91.13
287	2.42	93.55
291	2.08	95.63
294	1.53	97.16
298	1.09	98.25
300	1.75	100.00

Table K-16. 2008–09 MontCAS: Score Distribution—Science Grade 8

Scaled Score	Percentage	Cumulative Percentage
200	1.30	1.30
202	0.69	1.98
205	0.74	2.72
208	0.75	3.47
211	0.95	4.42
213	1.08	5.50
216	1.35	6.86
219	1.51	8.37
221	1.43	9.79
223	1.49	11.29
226	1.78	13.07
228	1.85	14.92
230	1.97	16.89
233	2.33	19.22
235	2.08	21.31
237	2.65	23.96
240	2.89	26.85
242	2.92	29.77
244	3.25	33.02
246	3.36	36.38
249	3.33	39.71
251	3.74	43.45
253	3.85	47.30
256	3.79	51.09
258	3.81	54.91
260	3.89	58.79
263	3.82	62.62
265	3.57	66.18
268	3.88	70.06
271	3.54	73.60
274	3.20	76.81
277	2.96	79.76
280	2.93	82.69
282	3.15	85.84
286	2.80	88.64
290	2.47	91.11
293	2.36	93.46
297	1.79	95.26
300	4.74	100.00

Table K-17. 2008–09 MontCAS: Score Distribution—Science Grade 10

Scaled Score	Percentage	Cumulative Percentage
200	4.46	4.46
202	1.23	5.70
205	1.40	7.10
207	1.79	8.89
210	1.78	10.67
212	1.94	12.61
214	1.95	14.56
217	1.93	16.49
219	2.21	18.70
221	2.38	21.08
223	2.51	23.59
226	2.64	26.23
228	2.67	28.90
230	2.75	31.65
232	3.01	34.67
234	3.18	37.85
237	2.75	40.60
239	3.30	43.90
241	3.10	47.00
243	3.55	50.55
246	3.26	53.81
248	3.51	57.32
250	3.30	60.62
253	3.15	63.77
255	3.26	67.03
258	2.98	70.01
260	2.94	72.95
263	2.82	75.77
266	3.09	78.86
269	2.87	81.73
272	2.53	84.27
275	2.51	86.78
278	2.33	89.11
282	2.26	91.37
286	1.92	93.29
290	1.61	94.90
294	1.40	96.30
299	1.22	97.52
300	2.48	100.00

Table K-18. 2008-09 MontCAS: Performance Level Descriptors (General)

Advanced	This level denotes superior performance.
Proficient	This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
Nearing Proficiency	This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.
Novice	This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.

Table K-19. 2008-09 MontCAS: Student Distributions within Performance Level Raw- and Scaled-Score Ranges—Grade 3

	Reading			Mathematics		
	Raw Score Range	Scaled Score Range	Percentage of Students	Raw Score Range	Scaled Score Range	Percentage of Students
Novice	0-16	200-224	3	0-32	200-224	17
Nearing Proficiency	17-26	227-249	12	33-40	228-249	16
Proficient	27-42	252-286	44	41-53	252-287	40
Advanced	43-60	289-300	41	54-66	290-300	28

Table K-20. 2008-09 MontCAS: Student Distributions within Performance Level Raw- and Scaled-Score Ranges—Grade 4

	Reading			Mathematics			Science		
	Raw Score Range	Scaled Score Range	Percentage of Students	Raw Score Range	Scaled Score Range	Percentage of Students	Raw Score Range	Scaled Score Range	Percentage of Students
Novice	0-18	200-223	4	0-25	200-224	15	0-25	200-224	7
Nearing Proficiency	19-28	225-249	14	26-37	226-249	18	26-37	226-249	27
Proficient	29-43	252-288	42	38-50	251-281	39	38-50	251-281	54
Advanced	44-60	290-300	39	51-61	284-300	28	51-61	284-300	12

Table K-21. 2008-09 MontCAS: Student Distributions within Performance Level Raw- and Scaled-Score Ranges—Grade 5

	Reading			Mathematics		
	Raw Score Range	Scaled Score Range	Percentage of Students	Raw Score Range	Scaled Score Range	Percentage of Students
Novice	0-18	200-222	4	0-24	200-224	14
Nearing Proficiency	19-28	225-249	12	25-33	227-249	19
Proficient	29-42	253-286	36	34-46	253-287	34
Advanced	43-60	289-300	48	47-66	289-300	33

Table K-22. 2008-09 MontCAS: Student Distributions within Performance Level Raw- and Scaled-Score Ranges—Grade 6

	Reading			Mathematics		
	Raw Score Range	Scaled Score Range	Percentage of Students	Raw Score Range	Scaled Score Range	Percentage of Students
Novice	0-20	200-224	6	0-23	200-224	16
Nearing Proficiency	21-28	227-247	9	24-32	227-249	19
Proficient	29-42	250-287	35	33-44	253-285	32
Advanced	43-60	290-300	50	45-66	288-300	33

Table K-23. 2008-09 MontCAS: Student Distributions within Performance Level Raw- and Scaled-Score Ranges—Grade 7

	Reading			Mathematics		
	Raw Score Range	Scaled Score Range	Percentage of Students	Raw Score Range	Scaled Score Range	Percentage of Students
Novice	0-19	200-223	5	0-21	200-224	15
Nearing Proficiency	20-29	225-249	12	22-29	227-249	19
Proficient	30-44	252-287	36	30-42	252-288	33
Advanced	45-60	291-300	47	43-66	291-300	34

Table K-24. 2008-09 MontCAS: Student Distributions within Performance Level Raw- and Scaled-Score Ranges—Grade 8

	Reading			Mathematics			Science		
	Raw Score Range	Scaled Score Range	Percentage of Students	Raw Score Range	Scaled Score Range	Percentage of Students	Raw Score Range	Scaled Score Range	Percentage of Students
Novice	0-23	200-222	7	0-22	200-224	15	0-23	200-223	11
Nearing Proficiency	24-32	225-249	11	23-32	227-249	24	24-34	226-249	28
Proficient	33-45	253-287	33	33-45	251-281	34	35-47	251-282	46
Advanced	46-60	290-300	49	46-66	284-300	27	48-61	286-300	14

Table K-25. 2008-09 MontCAS: Student Distributions within Performance Level Raw- and Scaled-Score Ranges—Grade 10

	Reading			Mathematics			Science		
	Raw Score Range	Scaled Score Range	Percentage of Students	Raw Score Range	Scaled Score Range	Percentage of Students	Raw Score Range	Scaled Score Range	Percentage of Students
Novice	0-25	200-224	9	0-18	200-224	10	0-26	200-223	24
Nearing Proficiency	26-33	227-249	12	19-29	227-248	35	27-37	226-248	34
Proficient	34-45	253-287	35	30-44	250-280	36	38-45	250-269	24
Advanced	46-60	290-300	44	45-66	282-300	19	46-61	272-300	18

Appendix L—REPORT SHELLS

MontCAS

CRT

System: Demonstration District A
 Grade: 10
 Spring 2009

Mathematics

System Summary Report

I. Distribution of Scores

Perf. Level	Scores	System			State		
		Number	% of Students	% of Students in Cat.	Number	% of Students	% of Students in Cat.
Advanced	297-300	72	10	20	925	9	19
	293-296	17	2		266	3	
	289-292	17	2		286	3	
	285-288	11	1		162	2	
	281-284	32	4		366	3	
Proficient	275-280	29	4	35	536	5	36
	269-274	68	9		708	7	
	262-268	50	7		769	7	
	256-261	62	8		835	8	
	250-255	59	8		959	9	
Nearing Proficiency	245-249	53	7	36	653	6	35
	240-244	75	10		1068	10	
	235-239	61	8		731	7	
	230-234	49	6		695	7	
	225-229	37	5		591	6	
Novice	220-224	36	5	8	619	6	10
	215-219	14	2		254	2	
	210-214	8	1		105	1	
	205-209	2	0		43	0	
	200-204	4	1		19	0	

II. Subtest Results

Standards	Mathematics	Possible Points	Average Points Earned	
			System	State
	Total Points	66	33	33
	1. Problem Solving	This standard is assessed within the frameworks of standards 2-7.		
	2. Numbers and Operations	13	7	7
	3. Algebra	11	5	5
	4. Geometry	13	7	7
	5. Measurement	8	4	4
	6. Data Analysis, Statistics, and Probability	13	7	7
	7. Patterns, Relations, and Functions	8	4	4

CRT Performance Level Descriptors

Advanced (281-300)

This level denotes superior performance.

Proficient (250-280)

This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

Nearing Proficiency (225-249)

This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.

Novice (200-224)

This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.

III. Results for Subgroups of Students

Reporting Category	System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students	756	8	36	35	20	10590	10	35	36	19
Gender										
Male	399	9	37	34	21	5417	11	34	34	20
Female	357	8	36	37	18	5173	9	36	37	17
Ethnicity										
American Indian or Alaska Native	82	20	51	24	5	1032	23	51	21	5
Asian	9	*	*	*	*	83	4	35	30	31
Hispanic	19	16	47	21	16	241	14	44	33	9
Black or African American	8	*	*	*	*	78	14	40	37	9
Native Hawaiian or Other Pacific Islander	1	*	*	*	*	16	6	56	38	0
White	637	7	34	38	22	9139	8	33	38	21
Special Education	76	36	51	11	3	1002	39	49	11	1
Students with a 504 Plan	9	*	*	*	*	101	8	44	36	13
Title I (optional)	150	16	44	30	10	1984	19	48	25	8
Tested with Standard Accommodation	55	22	64	9	5	733	38	48	12	2
Tested with Non-Standard Accommodation	6	*	*	*	*	48	56	40	4	0
Alternate Assessment	13	If a student in your system or school took the CRT-Alternate, please refer to Table III on the CRT-Alternate System or School Summary Report								
Migrant	1	*	*	*	*	22	9	55	32	5
Gifted/Talented	35	0	17	20	63	598	0	6	31	63
LEP/ELL	16	44	50	6	0	225	41	53	6	0
Former LEP Student	2	*	*	*	*	66	21	56	21	2
LEP Student Enrolled for First Time in a U.S. School	1	Performance levels are not reported for 1st year LEP students								
Free/Reduced Lunch	216	13	45	31	11	3080	16	45	30	9
Significant Cognitive Disability										
Special Education Disability(ies):										
Autism										
Cognitive Delay										
Deaf-Blindness Impairment										
Deafness										
Emotional Disturbance										
Hearing Impairment										
Learning Disability										
Other Health Impairment										
Orthopedic Impairment										
Speech/Language										
Traumatic Brain Injury										
Visual Impairment										

Data not available for the 2009 report

MontCAS

CRT

System: Demonstration District A
 Grade: 10
 Spring 2009

Reading

System Summary Report

I. Distribution of Scores

Perf. Level	Scores	System			State		
		Number	% of Students	% of Students in Cat.	Number	% of Students	% of Students in Cat.
Advanced	299-300	229	30	43	3239	31	44
	296-298	26	3		477	4	
	294-295	0	0		0	0	
	291-293	46	6		450	4	
	289-290	26	3		476	4	
Proficient	281-288	94	12	36	1208	11	35
	273-280	49	6		715	7	
	266-272	41	5		651	6	
	258-265	56	7		743	7	
	250-257	31	4		415	4	
Nearing Proficiency	245-249	40	5	13	402	4	12
	240-244	28	4		344	3	
	235-239	12	2		134	1	
	230-234	17	2		251	2	
	225-229	3	0		107	1	
Novice	220-224	11	1	8	217	2	9
	215-219	4	1		109	1	
	210-214	7	1		172	2	
	205-209	5	1		72	1	
	200-204	33	4		424	4	

II. Subtest Results

Standards	Reading	Possible Points	Average Points Earned	
			System	State
	Total Points	60	42	
	1. Students construct meaning as they comprehend, interpret, and respond to what they read	16	12	12
	2. Students apply a range of skills and strategies to read	19	13	13
	3. Students set goals, monitor, and evaluate their reading progress	This standard is not measurable in a statewide assessment.		
	4. Students select, read, and respond to print and nonprint material for a variety of purposes	12	9	9
	5. Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	13	8	8

CRT Performance Level Descriptors

Advanced (289-300)

This level denotes superior performance.

Proficient (250-288)

This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

Nearing Proficiency (225-249)

This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.

Novice (200-224)

This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.

III. Results for Subgroups of Students

Reporting Category	System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students	758	8	13	36	43	10606	9	12	35	44
Gender										
Male	399	10	16	35	38	5422	13	14	36	37
Female	359	5	10	36	48	5184	6	10	34	50
Ethnicity										
American Indian or Alaska Native	82	21	17	38	24	1036	24	20	36	20
Asian	9	*	*	*	*	84	10	13	32	45
Hispanic	19	5	16	47	32	243	12	17	41	31
Black or African American	8	*	*	*	*	78	12	9	49	31
Native Hawaiian or Other Pacific Islander	1	*	*	*	*	16	6	19	44	31
White	639	7	13	34	46	9148	8	11	35	47
Special Education	78	36	27	28	9	1007	41	27	26	7
Students with a 504 Plan	9	*	*	*	*	102	8	9	38	45
Title I (optional)	137	17	17	43	23	1911	19	22	38	22
Tested with Standard Accommodation	59	29	31	25	15	743	38	27	26	9
Tested with Non-Standard Accommodation	3	*	*	*	*	39	46	33	18	3
Alternate Assessment	13	If a student in your system or school took the CRT-Alternate, please refer to Table III on the CRT-Alternate System or School Summary Report								
Migrant	1	*	*	*	*	22	9	27	41	23
Gifted/Talented	35	3	0	11	86	599	1	1	11	87
LEP/ELL	16	50	31	19	0	225	55	29	16	0
Former LEP Student	2	*	*	*	*	66	23	24	45	8
LEP Student Enrolled for First Time in a U.S. School	1	Performance levels are not reported for 1st year LEP students								
Free/Reduced Lunch	216	15	18	38	28	3090	16	17	39	28
Significant Cognitive Disability										
Special Education Disability(ies):										
Autism										
Cognitive Delay										
Deaf-Blindness Impairment										
Deafness										
Emotional Disturbance										
Hearing Impairment										
Learning Disability										
Other Health Impairment										
Orthopedic Impairment										
Speech/Language										
Traumatic Brain Injury										
Visual Impairment										

Data not available for the 2009 report

MontCAS

CRT

System: Demonstration District A
 Grade: 10
 Spring 2009

Science

System Summary Report

I. Distribution of Scores

Perf. Level	Scores	System			State		
		Number	% of Students	% of Students in Cat.	Number	% of Students	% of Students in Cat.
Advanced	295-300	27	4	19	393	4	18
	289-294	24	3		320	3	
	282-288	39	5		444	4	
	276-281	17	2		247	2	
	270-275	38	5		536	5	
Proficient	266-269	34	4	25	633	6	24
	262-265	19	3		300	3	
	258-261	50	7		629	6	
	254-257	32	4		346	3	
	250-253	51	7		685	6	
Nearing Proficiency	245-249	58	8	34	719	7	34
	240-244	55	7		706	7	
	235-239	49	6		643	6	
	230-234	60	8		950	9	
	225-229	39	5		564	5	
Novice	220-224	26	3	22	520	5	24
	215-219	32	4		440	4	
	210-214	37	5		602	6	
	205-209	30	4		339	3	
	200-204	40	5		605	6	

II. Subtest Results

Standards	Science	Possible Points	Average Points Earned	
			System	State
	Total Points	61	35	35
1. Scientific Investigations	14	8	8	
2. Physical Science	14	7	7	
3. Life Science	14	7	7	
4. Earth and Space Science	14	9	9	
5. Impact on Society	Sub scores are not reported for this standard			
6. Historical Development	Sub scores are not reported for this standard			

CRT Performance Level Descriptors

Advanced (270-300)

This level denotes superior performance.

Proficient (250-269)

This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

Nearing Proficiency (225-249)

This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.

Novice (200-224)

This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.

MontCAS

CRT

School: Demonstration School 1
 System: Demonstration District A
 Grade: 10
 Spring 2009

Mathematics

School Summary Report

I. Distribution of Scores

Perf. Level	Scores	School			System			State		
		N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.
Advanced	297-300	41	9	20	72	10	20	925	9	19
	293-296	12	3		17	2		266	3	
	289-292	10	2		17	2		286	3	
	285-288	6	1		11	1		162	2	
	281-284	18	4		32	4		366	3	
Proficient	275-280	17	4	36	29	4	35	536	5	36
	269-274	42	9		68	9		708	7	
	262-268	26	6		50	7		769	7	
	256-261	39	9		62	8		835	8	
	250-255	38	9		59	8		959	9	
Nearing Proficiency	245-249	27	6	36	53	7	36	653	6	35
	240-244	45	10		75	10		1068	10	
	235-239	37	8		61	8		731	7	
	230-234	23	5		49	6		695	7	
	225-229	26	6		37	5		591	6	
Novice	220-224	20	5	8	36	5	8	619	6	10
	215-219	9	2		14	2		254	2	
	210-214	5	1		8	1		105	1	
	205-209	1	0		2	0		43	0	
	200-204	2	0		4	1		19	0	

II. Subtest Results

Standards	Mathematics	Possible Points	Average Points Earned		
			School	System	State
Total Points	66	33	33	33	33
1. Problem Solving	This standard is assessed within the frameworks of standards 2-7.				
2. Numbers and Operations	13	7	7	7	7
3. Algebra	11	5	5	5	5
4. Geometry	13	7	7	7	7
5. Measurement	8	4	4	4	4
6. Data Analysis, Statistics, and Probability	13	6	7	7	7
7. Patterns, Relations, and Functions	8	4	4	4	4

CRT Performance Level Descriptors

Advanced (281-300)

This level denotes superior performance.

Proficient (250-280)

This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

Nearing Proficiency (225-249)

This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.

Novice (200-224)

This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.

MontCAS

CRT

Confidential

Mathematics

**School
Summary
Report**

School: Demonstration School 1
System: Demonstration District A
Grade: 10
Spring 2009

III. Results for Subgroups of Students

Reporting Category	School					System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students	444	8	36	36	20	756	8	36	35	20	10590	10	35	36	19
Gender															
Male	234	9	38	32	21	399	9	37	34	21	5417	11	34	34	20
Female	210	8	33	41	18	357	8	36	37	18	5173	9	36	37	17
Ethnicity															
American Indian or Alaska Native	47	19	47	28	6	82	20	51	24	5	1032	23	51	21	5
Asian	6	*	*	*	*	9	*	*	*	*	83	4	35	30	31
Hispanic	13	15	46	23	15	19	16	47	21	16	241	14	44	33	9
Black or African American	4	*	*	*	*	8	*	*	*	*	78	14	40	37	9
Native Hawaiian or Other Pacific Islander	1	*	*	*	*	1	*	*	*	*	16	6	56	38	0
White	373	7	33	39	21	637	7	34	38	22	9139	8	33	38	21
Special Education	49	31	57	10	2	76	36	51	11	3	1002	39	49	11	1
Students with a 504 Plan	5	*	*	*	*	9	*	*	*	*	101	8	44	36	13
Title I (optional)	87	15	39	34	11	150	16	44	30	10	1984	19	48	25	8
Tested with Standard Accommodation	37	19	68	11	3	55	22	64	9	5	733	38	48	12	2
Tested with Non-Standard Accommodation	2	*	*	*	*	6	*	*	*	*	48	56	40	4	0
Alternate Assessment	9	If a student in your system or school took the CRT-Alternate, please refer to Table III on the CRT-Alternate System or School Summary Report													
Migrant	1	*	*	*	*	1	*	*	*	*	22	9	55	32	5
Gifted/Talented	21	0	5	24	71	35	0	17	20	63	598	0	6	31	63
LEP/ELL	10	50	40	10	0	16	44	50	6	0	225	41	53	6	0
Former LEP Student	1	*	*	*	*	2	*	*	*	*	66	21	56	21	2
LEP Student Enrolled for First Time in a U.S. School	1	Performance levels are not reported for 1st year LEP students													
Free/Reduced Lunch	120	13	42	33	12	216	13	45	31	11	3080	16	45	30	9
Significant Cognitive Disability															
Special Education Disability(ies):															
Autism															
Cognitive Delay															
Deaf-Blindness Impairment															
Deafness															
Emotional Disturbance															
Hearing Impairment															
Learning Disability															
Other Health Impairment															
Orthopedic Impairment															
Speech/Language															
Traumatic Brain Injury															
Visual Impairment															

Data not available for the 2009 report

MontCAS

CRT

School: Demonstration School 1
 System: Demonstration District A
 Grade: 10
 Spring 2009

Reading

School Summary Report

I. Distribution of Scores

Perf. Level	Scores	School			System			State		
		N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.
Advanced	299-300	134	30	42	229	30	43	3239	31	44
	296-298	16	4		26	3		477	4	
	294-295	0	0		0	0		0	0	
	291-293	21	5		46	6		450	4	
	289-290	15	3		26	3		476	4	
Proficient	281-288	53	12	35	94	12	36	1208	11	35
	273-280	30	7		49	6		715	7	
	266-272	23	5		41	5		651	6	
	258-265	32	7		56	7		743	7	
	250-257	19	4		31	4		415	4	
Nearing Proficiency	245-249	25	6	14	40	5	13	402	4	12
	240-244	19	4		28	4		344	3	
	235-239	7	2		12	2		134	1	
	230-234	11	2		17	2		251	2	
	225-229	2	0		3	0		107	1	
Novice	220-224	4	1	8	11	1	8	217	2	9
	215-219	2	0		4	1		109	1	
	210-214	5	1		7	1		172	2	
	205-209	3	1		5	1		72	1	
	200-204	23	5		33	4		424	4	

II. Subtest Results

Standards	Reading	Possible Points	Average Points Earned		
			School	System	State
	Total Points	60	41	42	42
1.	Students construct meaning as they comprehend, interpret, and respond to what they read	16	11	12	12
2.	Students apply a range of skills and strategies to read	19	13	13	13
3.	Students set goals, monitor, and evaluate their reading progress	This standard is not measurable in a statewide assessment.			
4.	Students select, read, and respond to print and nonprint material for a variety of purposes	12	9	9	9
5.	Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences	13	8	8	8

CRT Performance Level Descriptors

Advanced (289-300)

This level denotes superior performance.

Proficient (250-288)

This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

Nearing Proficiency (225-249)

This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.

Novice (200-224)

This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.

III. Results for Subgroups of Students

Reporting Category	School					System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students	444	8	14	35	42	758	8	13	36	43	10606	9	12	35	44
Gender															
Male	234	11	20	32	38	399	10	16	35	38	5422	13	14	36	37
Female	210	6	9	39	47	359	5	10	36	48	5184	6	10	34	50
Ethnicity															
American Indian or Alaska Native	47	21	15	43	21	82	21	17	38	24	1036	24	20	36	20
Asian	6	*	*	*	*	9	*	*	*	*	84	10	13	32	45
Hispanic	13	0	23	46	31	19	5	16	47	32	243	12	17	41	31
Black or African American	4	*	*	*	*	8	*	*	*	*	78	12	9	49	31
Native Hawaiian or Other Pacific Islander	1	*	*	*	*	1	*	*	*	*	16	6	19	44	31
White	373	7	14	33	46	639	7	13	34	46	9148	8	11	35	47
Special Education	50	32	34	24	10	78	36	27	28	9	1007	41	27	26	7
Students with a 504 Plan	5	*	*	*	*	9	*	*	*	*	102	8	9	38	45
Title I (optional)	79	16	14	42	28	137	17	17	43	23	1911	19	22	38	22
Tested with Standard Accommodation	40	28	33	23	18	59	29	31	25	15	743	38	27	26	9
Tested with Non-Standard Accommodation	0	*	*	*	*	3	*	*	*	*	39	46	33	18	3
Alternate Assessment	10	If a student in your system or school took the CRT-Alternate, please refer to Table III on the CRT-Alternate System or School Summary Report													
Migrant	1	*	*	*	*	1	*	*	*	*	22	9	27	41	23
Gifted/Talented	21	5	0	10	86	35	3	0	11	86	599	1	1	11	87
LEP/ELL	10	60	20	20	0	16	50	31	19	0	225	55	29	16	0
Former LEP Student	1	*	*	*	*	2	*	*	*	*	66	23	24	45	8
LEP Student Enrolled for First Time in a U.S. School	1	Performance levels are not reported for 1st year LEP students													
Free/Reduced Lunch	120	15	19	43	23	216	15	18	38	28	3090	16	17	39	28
Significant Cognitive Disability															
Special Education Disability(ies):															
Autism															
Cognitive Delay															
Deaf-Blindness Impairment															
Deafness															
Emotional Disturbance															
Hearing Impairment															
Learning Disability															
Other Health Impairment															
Orthopedic Impairment															
Speech/Language															
Traumatic Brain Injury															
Visual Impairment															

Data not available for the 2009 report

MontCAS

CRT

School: Demonstration School 1
 System: Demonstration District A
 Grade: 10
 Spring 2009

Science

School Summary Report

I. Distribution of Scores

Perf. Level	Scores	School			System			State		
		N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.	N	% of Students	% of Students in Cat.
Advanced	295-300	13	3	18	27	4	19	393	4	18
	289-294	10	2		24	3		320	3	
	282-288	29	7		39	5		444	4	
	276-281	8	2		17	2		247	2	
	270-275	19	4		38	5		536	5	
Proficient	266-269	22	5	23	34	4	25	633	6	24
	262-265	8	2		19	3		300	3	
	258-261	25	6		50	7		629	6	
	254-257	16	4		32	4		346	3	
	250-253	32	7		51	7		685	6	
Nearing Proficiency	245-249	41	9	38	58	8	34	719	7	34
	240-244	33	7		55	7		706	7	
	235-239	39	9		49	6		643	6	
	230-234	36	8		60	8		950	9	
	225-229	17	4		39	5		564	5	
Novice	220-224	14	3	21	26	3	22	520	5	24
	215-219	19	4		32	4		440	4	
	210-214	19	4		37	5		602	6	
	205-209	17	4		30	4		339	3	
	200-204	25	6		40	5		605	6	

II. Subtest Results

Standards	Science	Possible Points	Average Points Earned		
			School	System	State
	Total Points	61	35	35	35
1. Scientific Investigations		14	8	8	8
2. Physical Science		14	7	7	7
3. Life Science		14	7	7	7
4. Earth and Space Science		14	9	9	9
5. Impact on Society		Sub scores are not reported for this standard			
6. Historical Development		Sub scores are not reported for this standard			

CRT Performance Level Descriptors

Advanced (270-300)

This level denotes superior performance.

Proficient (250-269)

This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

Nearing Proficiency (225-249)

This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.

Novice (200-224)

This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.

III. Results for Subgroups of Students

Reporting Category	School					System					State				
	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A	Number	% in N	% in NP	% in P	% in A
All Students	442	21	38	23	18	757	22	34	25	19	10621	24	34	24	18
Gender															
Male	233	24	36	22	18	400	24	33	23	20	5435	25	32	23	20
Female	209	19	39	24	18	357	20	36	26	18	5186	23	36	25	16
Ethnicity															
American Indian or Alaska Native	46	52	30	15	2	82	52	27	15	6	1036	52	32	12	4
Asian	6	*	*	*	*	9	*	*	*	*	82	22	34	20	24
Hispanic	13	38	38	23	0	19	32	37	26	5	241	37	38	17	8
Black or African American	4	*	*	*	*	8	*	*	*	*	78	26	42	24	8
Native Hawaiian or Other Pacific Islander	1	*	*	*	*	1	*	*	*	*	17	24	47	24	6
White	372	17	38	24	20	638	18	35	26	21	9166	20	34	26	20
Special Education	49	59	35	4	2	80	60	31	6	3	1045	66	25	6	3
Students with a 504 Plan	5	*	*	*	*	9	*	*	*	*	101	24	31	28	18
Title I (optional)	38	32	26	34	8	61	36	28	28	8	626	44	29	16	11
Tested with Standard Accommodation	35	54	34	9	3	55	58	31	5	5	753	66	24	7	3
Tested with Non-Standard Accommodation	0	*	*	*	*	0	*	*	*	*	0	*	*	*	*
Alternate Assessment	10	If a student in your system or school took the CRT-Alternate, please refer to Table III on the CRT-Alternate System or School Summary Report													
Migrant	1	*	*	*	*	1	*	*	*	*	22	32	45	18	5
Gifted/Talented	21	0	14	29	57	35	6	11	23	60	598	2	9	29	61
LEP/ELL	9	*	*	*	*	15	100	0	0	0	223	86	13	0	0
Former LEP Student	1	*	*	*	*	2	*	*	*	*	66	56	35	9	0
LEP Student Enrolled for First Time in a U.S. School	1	Performance levels are not reported for 1st year LEP students													
Free/Reduced Lunch	118	28	47	17	8	215	30	41	18	11	3093	36	36	18	9
Significant Cognitive Disability															
Special Education Disability(ies):															
Autism															
Cognitive Delay															
Deaf-Blindness Impairment															
Deafness															
Emotional Disturbance															
Hearing Impairment															
Learning Disability															
Other Health Impairment															
Orthopedic Impairment															
Speech/Language															
Traumatic Brain Injury															
Visual Impairment															

Data not available for the 2009 report

CRT Performance Level Descriptors

The Performance Level Descriptors below describe students' knowledge, skills, and abilities in a content area. These descriptions provide a picture or profile of student achievement at the four performance levels: **Advanced**, **Proficient**, **Nearing Proficiency**, and **Novice**. Grade and content performance level descriptors may be found on OPI's web site at <http://www.opi.mt.gov/assessment/index.html>.

Advanced

This level denotes superior performance.

Proficient

This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

Nearing Proficiency

This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.

Novice

This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.

	Score Ranges		
	Reading	Math	Science
Advanced	(289-300)	(281-300)	(270-300)
Proficient	(250-288)	(250-280)	(250-269)
Nearing Proficiency	(225-249)	(225-249)	(225-249)
Novice	(200-224)	(200-224)	(200-224)

Reading Standards

1. Students construct meaning as they comprehend, interpret, and respond to what they read.
2. Students apply a range of skills and strategies to read.
3. Students set goals, monitor, and evaluate their reading progress.
4. Students select, read, and respond to print and nonprint material for a variety of purposes.
5. Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audiences.

Mathematics Standards

1. Problem Solving
2. Numbers and Operations
3. Algebra
4. Geometry
5. Measurement
6. Data Analysis, Statistics, and Probability
7. Patterns, Relations, and Functions

Science Standards

1. Scientific Investigations
2. Physical Science
3. Life Science
4. Earth/Space Science
5. Impact on Society
6. Historical Development



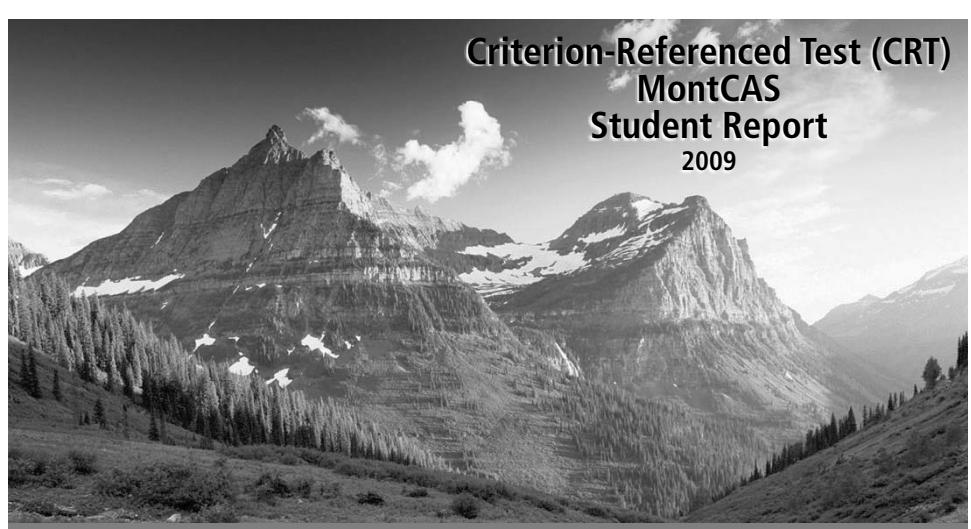
Denise Juneau, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov

OPI Contact

Judy Snow, State Assessment Director
406-444-3656
jsnow@mt.gov

For more information regarding student assessments in Montana, check out the Office of Public Instruction's Parents Page at <http://www.opi.mt.gov/parents>.

Criterion-Referenced Test (CRT) MontCAS Student Report 2009



Student Name: Ackroyd, Caitlynn

School: Demonstration School 1

System: Demonstration District A

Grade: 10

Dear Parents/Guardians:

The Montana Comprehensive Assessment System (MontCAS) Criterion-Referenced Test (CRT) is the State's measure of student performance on the state content standards which establish goals for what all students should know and be able to do.

The CRT assesses Reading and Math at grades 3-8 and 10. Students in grade 4, 8, and 10 are also assessed in Science. The assessment contains multiple-choice, math short answer questions, and constructed response items. The constructed response items give students the opportunity to explain answers and solve problems using multiple strategies.

This report shows how your student performed on the March 2009 CRT. The results of this standards-based assessment are reported in four performance levels: Advanced, Proficient, Nearing Proficiency, and Novice. While some students may not yet meet the standards, keep in mind that the standards are rigorous and challenging. Our long term goal is for all students to achieve these high standards so that Montana youth will be among the best educated in the world. The staff at your school will be able to provide further information about your student's performance on the CRT.

The CRT is only one measure of student performance and should be viewed in the context of the student's local programs and other measures. The CRT is required by the No Child Left Behind Act and is part of an ongoing statewide educational improvement process. I encourage you to contact your child's school to begin a conversation that will support your child's success.

Sincerely,

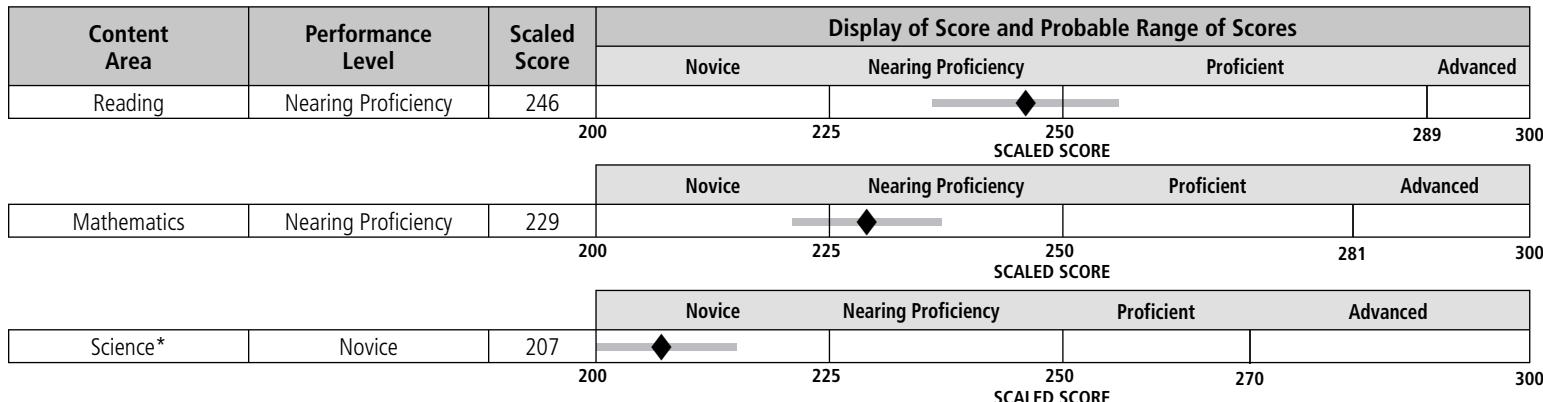
Denise Juneau
Montana Superintendent of Public Instruction

Montana Office of Public Instruction
PO Box 202501
Helena, Montana 59620-2501
<http://www.opi.mt.gov>

Individual Student Results

Scaled Scores on the CRT

The Criterion-Referenced Test (CRT) is designed to measure student mastery of the annual learning goals described in the Montana Content Standards. Results are reported according to four performance levels: **Advanced**, **Proficient**, **Nearing Proficiency**, and **Novice**. The student's performance levels in reading, mathematics, and science* are based on a total scaled score in each content area ranging from 200 to 300. The diamond (♦) represents the student's score. The bar (—) surrounding the score represents the probable range of scores for the student if he or she were to take the test many times. This statistic is called the standard error of measurement.



This Student's Performance Levels Relative to Student Achievement for State

The table below shows this student's performance on the Montana CRT compared to the overall state performance for each content area.

	Reading		Mathematics		Science*	
	Student	State	Student	State	Student	State
Advanced		44		19		18
Proficient		35		36		24
Nearing Proficiency	✓	12	✓	35		34
Novice		9		10	✓	24

This Student's Performance in Content Standards

Scores on Montana Content Standards

CRT results are reported for Montana Content Standards in reading, mathematics, and science* to provide standard-specific information about the student's achievement. The results can be used to show the student's relative performance on the standards within a content area.

Reading	Total Possible Points	Student % of Points Earned	Points Earned	
			Average State %	
Standard 1	16	69	72	
Standard 2	19	53	69	
Standard 3	This standard is not measurable in a statewide assessment.			
Standard 4	12	50	76	
Standard 5	13	38	61	

Science*	Total Possible Points	Student % of Points Earned	Points Earned	
			Average State %	
Standard 1	14	43	59	
Standard 2	14	43	51	
Standard 3	14	21	49	
Standard 4	14	21	66	
Standard 5	Sub scores are not reported for this standard.			
Standard 6	Sub scores are not reported for this standard.			

Note: The points earned on the indicated standards cannot be added together to equal the scaled score.

Mathematics	Total Possible Points	Student % of Points Earned	Points Earned	
			Average State %	
Standard 1			This standard is assessed within the frameworks of standards 2-7.	
Standard 2	13	23	53	
Standard 3	11	9	46	
Standard 4	13	46	50	
Standard 5	8	0	47	
Standard 6	13	46	50	
Standard 7	8	50	52	

The standards for each content area can be found on the front of this report.

* Science is assessed at grades 4, 8, and 10 only.

Contact your student's school or the state assessment director for more information about the following symbols:

† Student did not complete the assessment.

§ Student participated with a non-standard accommodation.

** Student did not participate.

¥ A test administration irregularity has affected your student's results.



Confidential
Roster and Item-Level Report
Reading

System:

School:

Grade:

4

Date: 9/19/2008

Page: 1

Position	2	3	17	18	19	20	31	32	33	35	40	56	57	59	60	69	70	71	73	75	77			
Standard	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Key	B	A	A	C	B	C	D	D	B	B	B	B	A	D	D	A	B	B	A	C	A			
Points Possible	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Last Name	First Name																					Scaled Score	Performance Level	
		+	+	+	+	+	+	+	+	+	C	A	+	+	+	+	+	+	+	B	+	N		
		+	+	C	A	C	A	+	+	C	+	+	+	B	A	+	+	+	+	+	+	291	A	
		+	+	+	+	+	+	+	+	+	+	+	+	C	+	+	+	+	+	+	+	281	P	
		+	+	D	+	+	B	+	+	+	A	+	+	+	B	+	+	+	B	+	D	285	P	
		+	+	D	B	+	+	+	+	+	+	+	+	B	+	+	+	C	+	+	+	295	A	
		+	+	D	B	+	+	+	+	+	+	+	+	B	+	+	+	+	+	D	D	284	P	
		A	+	D	+	D	+	+	+	+	C	C	+	+	+	B	+	C	+	+	B	+	263	P
		C	C	+	+	A	+	+	+	+	A	+	+	B	+	A	+	+	D	+	+	+	273	P
		+	C	D	+	+	+	+	+	A	A	+	+	B	+	A	+	+	C	+	+	+	284	P
		+	+	+	+	+	+	+	+	+	A	C	+	+	+	D	+	+	+	+	+	+	290	A
		+	+	+	+	+	+	+	+	A	A	+	+	A	A	C	A	B	B	B	+	+	287	NP
		+	+	B	+	D	+	B	+	C	+	+	D	D	B	C	+	+	B	D	B	S	295	NP
		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	C	B	C	+	288	P
		+	+	+	B	+	+	B	A	A	A	+	D	+	+	C	B	C	+	B	+	+	263	P
		+	+	+	+	+	+	A	+	D	+	+	+	+	D	C	+	B	+	+	+	+	285	P
		+	+	+	+	+	+	B	+	+	+	+	+	+	+	+	+	+	+	+	+	+	300	A
		+	C	D	B	+	+	C	+	A	C	C	+	+	C	B	C	C	B	+	C	+	244	NP
		+	+	U	+	B	+	A	+	L	A	+	+	A	U	A	+	B	+	U	+	U	273	P
		+	+	C	+	+	+	+	A	A	+	+	+	+	+	+	+	+	+	+	+	+	288	P
		+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	300	A
		+	+	+	+	+	+	+	+	C	A	+	+	+	+	C	B	D	B	S	+	+	281	P
		+	D	+	+	+	+	+	A	+	A	+	+	B	+	B	+	+	+	+	+	+	284	P
		+	C	A	A	+	+	A	+	D	D	+	+	A	+	D	D	+	B	B	C	+	234	NP
		+	C	+	+	D	+	+	A	+	A	+	+	B	+	B	+	+	+	+	+	+	294	A
		+	+	+	+	+	+	A	+	A	D	+	+	+	+	+	+	+	B	+	S	+	292	A
		+	C	D	+	+	D	+	A	C	C	+	+	A	B	C	C	+	B	D	+	+	244	NP



Confidential
Roster and Item-Level Report
Science

System:

670

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4

Date: 9/19/2008

Page 1

Last Name	First Name	Position	S	9	37	38	43	58	71	72	78	80	81				
			Standard	1	1	1	1	1	1	1	1	1	1				
			Key	A	D	A	B	I	D	A	D	A	C				
			Points Possible	1	1	1	1	1	1	1	1	1	1	4			
			+	+	+	+	+	+	+	+	+	+	+	1			
			+	+	+	+	+	+	+	C	+	+	+	3			
			+	B	+	+	+	D	+	+	+	+	+	2			
			+	+	D	+	+	+	+	+	+	+	+	2			
			+	+	D	D	+	+	+	+	+	+	+	2			
			+	+	D	D	+	+	+	+	+	+	+	2			
			+	+	D	D	+	+	+	+	+	+	+	2			
			+	C	B	+	+	+	+	+	+	+	+	8			
			+	C	+	A	D	+	+	+	B	+	+	1			
			+	B	D	C	+	+	+	+	+	+	+	1			
			+	+	+	A	A	C	B	+	+	+	+	0			
			+	+	+	D	+	+	+	C	D	+	1				
			+	+	D	+	+	C	+	+	+	+	+	1			
			+	+	D	+	+	C	B	B	C	A	1				
			+	+	D	+	+	C	+	+	+	+	+	0			
			+	B	+	+	+	+	+	+	+	+	+	3			
			+	+	B	C	+	+	D	+	C	+	1				
			+	+	C	+	+	+	+	+	+	+	+	1			
			+	A	+	+	+	+	+	+	+	+	+	3			
			+	+	B	C	+	+	D	+	C	+	1				
			+	+	C	+	+	+	+	+	+	+	+	1			
			+	A	+	+	+	+	+	+	+	+	+	3			
			+	A	+	+	+	+	+	+	+	+	+	3			
			+	B	C	+	+	+	B	A	C	+	1				
			+	C	+	C	D	+	A	D	B	1					
			+	D	+	+	+	+	+	+	0	+	1				
			+	B	+	+	+	+	+	+	+	+	+	3			
			+	+	+	+	+	+	+	+	B	+	0				

CRT Performance Level Descriptors

The Performance Level Descriptors below describe students' knowledge, skills, and abilities in a content area. These descriptions provide a picture or profile of student achievement at the four performance levels. **Advanced, Proficient, Hearing Proficiency, and Novice.** Grade and content performance level descriptions may be found on OPI's web site at <http://depts.mt.gov/opi/assessment/index.html>

Advanced

This level denotes superior performance.

Proficient

This level denotes solid academic performance for each benchmark. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

Hearing Proficiency

This level denotes that the student has partial mastery or prerequisite knowledge and skills fundamental for proficient work at each benchmark.

Novice

This level denotes that the student is beginning to attain the prerequisite knowledge and skills that are fundamental for work at each benchmark.

	Score Range	Reading	Math	Science
Advanced	(299-300)	(291-300)	(281-300)	
Proficient	(259-280)	(251-280)	(251-280)	
Hearing Proficiency	(235-240)	(225-240)	(225-240)	
Novice	(200-214)	(200-214)	(200-214)	

Reading Standards

1. Student is construct meaning as they comprehend, interpret, and respond to what they read.
2. Student is apply a range of skills and strategies to read.
3. Student is set goals, monitor, and evaluate their reading progress.
4. Student is select, read, and respond to print and nonprint material for a variety of purposes.
5. Student is gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purpose and audience.

Mathematics Standards

1. Problem Solving
2. Number and Operations
3. Algebra
4. Geometry
5. Measurement
6. Data Analysis, Statistics, and Probability
7. Patterns, Relations, and Functions

Science Standards

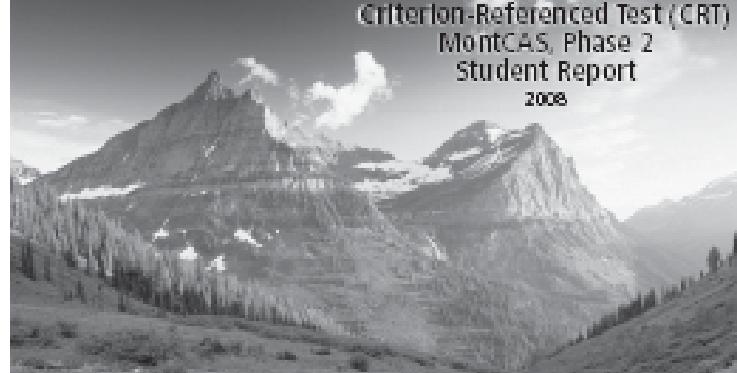
1. Scientific Investigations
2. Physical Science
3. Life Sciences
4. Earth/Space Science
5. Impact on Society
6. Historical Development



OPI Contact
Judy Snow, State Assessment Director
406-444-3556
jsnow@mt.gov

For more information regarding student assessments in Montana, check out the Office of Public Instruction's Parents page at <http://depts.mt.gov/opi/>.

Criterion-Referenced Test (CRT) MontCAS, Phase 2 Student Report 2008



Student Name:

A

School:

System:

Grade: 04

Dear Parents/Guardians:

This report contains the results of the Spring 2008 Montana Comprehensive Assessment System (MontCAS) Criterion-Referenced Test (CRT) that your child took in March. The CRT provides schools with information to evaluate and improve curriculum and instruction to help all students meet Montana's content standards. This report provides important information about your child's performance on the assessment along with state results.

The CRT contains multiple-choice, short-answer questions, and constructed responses. The test measures a student's knowledge of subject matter identified in the Montana State Standards for Reading, Mathematics, and Science. Science is assessed in grades 4, 8, and 10 only.

It is important to remember that the CRT is just one measure of your child's academic progress. Your local school staff can provide further information about your child's performance in school. The CRT, which is required by the No Child Left Behind Act, is part of an ongoing statewide educational improvement process. Working together, we can ensure that Montana's children continue to receive a high-quality education.

Sincerely,

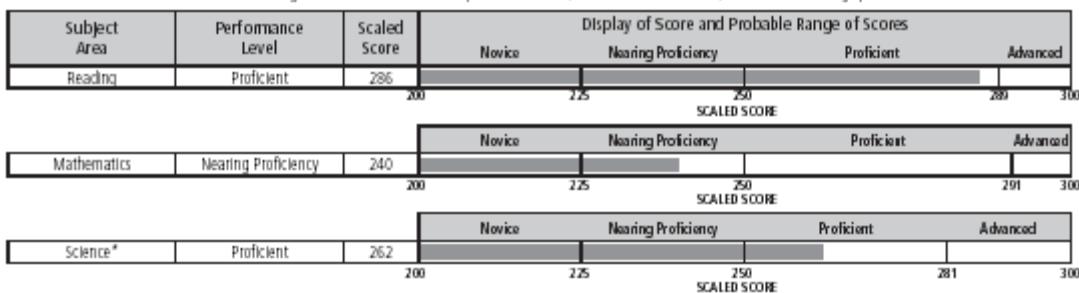
Linda McClellan
 Montana Superintendent of Public Instruction

Montana Office of Public Instruction
 P.O. Box 202404
 Helena, Montana 59620-2404
<http://depts.mt.gov/opi/>

How did ASPEN ALLEN do on the CRT?

Scaled Scores on the CRT

The criterion-referenced test (CRT) is designed to measure student performance against the learning goals described in the Montana Content Standards (<http://www.ope.state.mt.us/standards/index.html>). Consistent with this purpose, results on the CRT are reported according to performance levels that describe student performance in relation to the established state standards. There are four performance levels: **Advanced**, **Proficient**, **Near Proficiency**, and **Novice**. Your child's performance levels in reading, mathematics, and science* are based on a total scaled score in each content area. Scaled scores in each content area range from 200 to 300. Your child's performance levels, based on the scaled scores, are shown in the bar graphs below.



Scores on Montana Content Standards

In addition to performance levels, CRT results are reported for Montana Content Standards in Reading, Mathematics, and Science. Unlike scaled scores which provide a total performance level score, Montana Content Standard Scores provide more specific information about your child's achievement on the CRT. The charts below show your child's performance compared to the overall state performance in each area of study within subject areas (Montana Content Standards for Reading, Math, and Science). These results can be used to show your child's relative strengths or weaknesses.

This Student's Performance Levels Relative to Student Achievement for State

	Reading		Mathematics		Science*	
	Student	State	Student	State	Student	State
Advanced		34		27		14
Proficient	✓	45		40	✓	48
Near Proficiency		16	✓	19		30
Novice		5		14		7

This Student's Performance in Content Area Standards

Reading	Total Possible Points	Student % of Points Earned	Points Earned	
			Average State %	
Standard 1	21	86	68	
Standard 2	19	58	62	
Standard 3	This standard is not measurable in a statewide assessment.			
Standard 4	10	50	53	
Standard 5	10	80	64	

Science*	Total Possible Points	Student % of Points Earned	Points Earned	
			Average State %	
Standard 1	14	71	67	
Standard 2	14	79	70	
Standard 3	14	79	76	
Standard 4	14	64	65	
Standard 5	Sub scores are not reported for this standard.			
Standard 6	Sub scores are not reported for this standard.			

Mathematics	Total Possible Points	Student % of Points Earned	Points Earned	
			Average State %	
Standard 1			This standard is assessed within the frameworks of standards 2-7.	
Standard 2	22	50	59	
Standard 3	8	63	62	
Standard 4	10	40	62	
Standard 5	10	40	63	
Standard 6	8	88	77	
Standard 7	8	25	58	

The standards for each content area can be found on the back of this report.
 *Science is assessed at grades 4, 8, and 10 only.

Contact your student's school for more information about the following symbols:
 † Student did not complete the assessment. § Student participated with a non-standard accommodation. **Student did not participate.

